CORPS OF ENGINEERS WALTHAM MA NEW ENGLAND DIV F/G 13/2 BOSTON HARBOR, MASSACHUSETTS FEASIBILITY REPORT FOR DEBRIS REMO--ETC(U) MAY 80 AD-A092 397 NL UNCLASSIFIED

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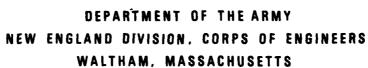




FEASIBILITY REPORT

DEBRIS REMOVAL VOLUME 2 OF 2





DECEMBER 1978 (REVISED M 8 0 0) 12 01 235

SECURITY CLASSIFICATION OF THIS PAGE (MIN

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19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Debris removal, debris sources, plan formulation, feasibility of debris removal, Boston Harbor, Boston, Massachusetts

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This study determined the engineering feasibility and environmental acceptability of removal and disposal of floatable debris from Boston Harbor. A total of 533 waterfront structures were found to be sources of debris. The total volume of floatable debris and non-floatable material from these sources is estimated to be about 3.2 million cubic feet and 4,500 tons, respectively.

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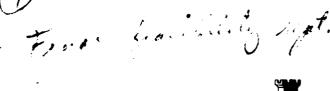
BOSTON HARBOR, MASSACHUSETTS
FEASIBILITY REPORT
FOR DEBRIS REMOVAL.

Volume 2.

PART A-DEBRIS INVENTORY.
SUMMARY SHEETS,

PART B - LAND ENHANCEMENT.

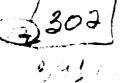
SUMMARY SHEETS,





DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
WALTHAM, MASS.

DECEMBER 1979 (REVISED MAY 4080)



APPENDIX

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APPENDIX 4

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Appendix 4 A-ii

PART A

DEBRIS INVENTORY

INVENTORY OF DEBRIS

GENERAL

- 1. An extensive inventory was made of the sources of debris located within the study area. This section of the report summarizes the methodology used to identify, classify and quantify the sources of debris. The original inventory was completed in 1971 and was updated in 1976 and 1977.
- 2. The debris was first categorized into five major sources of debris. Secondly, worksheets and charts with complete instructions for identifying the five categories of debris sources were developed. The five major categories of debris are:
 - 1. Waterfront Structures
 - 2. Derelict Vessels
 - 3. Loose Onshore Debris
 - 4. Drift
 - 5. Shorefront Dumps
- 3. After completing the field inventory, tables were developed. The data was then tabulated and summarized, and is shown in Tables A-1 through A-12 of this appendix. However, back-up tables to support summary sheets contained in this Appendix are not included here but are on file at the New England Division Office of the Corps of Engineers. Exclusion of back-up data has interrupted page numbering sequence. Inventory maps were also developed, which identified the location, condition and major classification of debris. These maps detailing the inventory are shown in Figures A-1 through A-21.

WATERFRONT STRUCTURES

- 4. All waterfront structures were examined in the field and their condition was classified as being one of the following: excellent, good, fair, and partly or wholly dilapidated. The following definition was used to determine whether a structure should be classified as dilapidated: "A waterfront structure fallen into such a state of ruin or decay as to be considered more practicable to entirely remove and replace than to repair". The waterfront structures (primarily timber pile supported wharves and bulkheads) were divided into sub-categories:
 - a. not dilapidated
 - b. dilapidated and not in use
 - c. dilapidated and in use
 - d. partially dilapidated and in use
- 5. To provide the degree of comprehensiveness necessary to make an accurate inventory of all waterfront structures, a chart (with instructions) was designed onto which all necessary data would be

Appendix 4

entered. The chart and instructions are illustrated in Figures A-22 and A-23 of this section.

- 6. The results of the inventory and its subsequent updates are summarized by type of debris source within each community in Appendix 1, Section C, Table C-1.
- 7. Based on findings, approximately forty-eight percent of all existing waterfront structures located within the study area require the removal in whole or part of the deteriorated structures. Sixty-six percent of these structures, representing 193, will require complete removal.

DERELICT VESSELS

8. The inventory for derelict vessels was conducted the same as for the waterfront structures. The chart and instructions are illustrated in Figures A-24 and A-25 of this section. This inventory, which is also summarized in Appendix 1, Section C, Table C-1, indicates that there are fifty-five derelict vessels to be removed. Locations of derelict vessels are indicated in Figures A-1 through A-21 of this section.

LOOSE ONSHORE DEBRIS

9. The shoreline distance of the study totals approximately 110 miles. Along this shoreline there are quantities of floatable debris whose locations were identified and quantities estimates as part of the inventory for waterfront structures. Item number ten on the waterfront structure charts indicates the location, type and estimated quantity of loose onshore debris. The loose onshore debris has been summarized in Table C-1, Section 6 of Appendix 1 and the locations identified in Figures A-1 through A-21 of this section.

DRIFT

10. Drift can be defined as floating material, hazardous to navigation, which is present in the water area and forms a part of each debris source including illegal dumping. It is estimated that on an average day approximately 1350 C.F. of drift exists in the study area, the largest concentration being within the inner harbor. This estimate is based on a visual examination of the study area, and through information obtained from private contractors who are under contract to collect material drifting in the harbor.

Appendix 4

SHOREFRONT DUMPS

11. An inventory was made of each shorefront dump. This was done by utilizing a methodology similar to the one for waterfront structures and derelict vessels. The shorefront dump inventory worksheet is illustrated in Figure A-26 of this section. A total of five shorefront dumps exist within the study area.

SUMMARY

12. The total quantity of floatable and non-floatable materials planned to be removed is 3,199,300 cubic feet and 4500 tons respectively. The debris sources, number of representation sites, quantity, and removal and disposal costs including reconstruction cost are presented by community in Tables A-1 through A-12 of this section. However, costs shown in these tables reflect 1978 price levels and do not include a cost for the removal and disposal of non-floatable materials. Cost figures shown in these tables have not been changed. Nevertheless, a summary of total costs by operation excluding contingincies, engineering and design, and supervision and administration is shown below. The summary contains a 14% increase in costs necessary to update price levels to December 1979 and an estimated \$93,300 to rid harbor of non-floatable materials. Project summary costs:

| Collection | 1,031,100 |
|------------|------------|
| Remova1 | 9,532,500 |
| Disposal | 1,661,900 |
| Repair | 2,128,800 |
| Total | 14,354,300 |

Drift volumes and related collection costs are not included in tables as drift could not be assigned to any given community.

Appendix 4 A-3

| | | | ROGHON HAR | NOSTON HABBOR DERRIES STILLY | À | | Inventory September July 1977 A-4 | ory Update oer 1976 177 |
|----|---|------------------------------|-------------------------------|--|--------------------------|---------------------------|--|-------------------------------|
| | | | TAL | TABLE A-1 | | | | |
| | INVENTORY SI | JMMARY OF | SUMMARY OF REMOVAL COSTS OF | DEBRIS | SOURCES IN HULL | N HULL * | | |
| | Item | Number of Sites | Quantity Floatable (cy) | of Material Non-Floatable (tons) | Total Removal Cost | Total Disposal Cost | Total Tota Reconstruction Cost Cost | Total** Cost |
| A. | Waterfront Structures | | | | | | | |
| | 1. Dilapidated - not in use | 18 | 25,750 | | 108,469 | 11,844 | | 120,313 |
| | 2. Dilapidated - in use | | | | | | | |
| | Portions Dilapidated - not to be repaired | 2 | 4,700 | | 24,089 | 2,162 | | 26,251 |
| | 4. Portions Dilapidated - to be repaired | 2 | 400 | | 2,008 | 184 | 17,550 | 2,192 |
| B. | Derelict (Wrecked) Vessels | | | | | | | |
| | 1. Timber | 1 | 100 | | 535 | 46 | | 581 |
| | 2. Steel | | NOT P | PART OF CLEANUP | PROGRAM | | | |
| ပ | Loose On-Shore Debris (Floatables) | 32 | 11,900 | | 28,560 | 5,474 | | 34,034 |
| o. | Drift Collection | | | | | | | |
| ម | Shorefront Rubbish Dumps | | N/A | N/A | | | | |
| | *The complete inventory of s NED Corps of Engineers, Wal | of sources of Waltham, MA | f debris is | s available at | | à đ | PLANNING DIVISION COASTAL DEVELOPMENT | t ENT |
| | **E & D and S & A costs not i | not included | | | | F | FOR NAVIGATION Sheet | 1 of 6 |

Inventory Update 443,614 298,155 1,594 80,366 September 1976 July 1977 Total** of Reconstruction Cost COASTAL DEVELOPMENT FOR NAVIGATION PLANNING DIVISION A-10 Sheet 30,575 Total Cost Total Total
Removal Disposal
Cost Cost 69,236 INVENTORY SUMMARY OF REMOVAL COSTS OF DEBRIS SOURCES IN HINGHAM 281 53,472 12,926 Total 374,378 244,683 1,313 NOT PART OF CLEANUP PROGRAM 67,440 BOSTON HARBOR DEBRIS STUDY Quantity of Material Floatable Non-Floatable *The complete inventory of sources of debris is available at (tons) N/A N/A TABLE A- 2 610 150,515 116,250 28,100 (CX) N/A NED Corps of Engineers, Waltham, MA Number **E & D and S & A costs not included Sites of 7 œ ~ 21 1. Dilapidated - not in use Derelict (Wrecked) Vessels 3. Portions Dilapidated Portions Dilapidated Dilapidated - in use not to be repaired Waterfront Structures Loose On-Shore Debris Shorefront Rubbish to be repaired Drift Collection Item (Floatables) 1. Timber 2. Steel Dumps Ä æ. ပ å ы ш

Appendix 4

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A-5

| | | | | | | | Inventory September July 1977 A-16 | ry Update er 1976 177 |
|-----|---|------------------------------|-------------------------------|--|--------------------------|---------------------------|---|-----------------------------|
| · | | | BUSTON HARBOR | BOSTON HARBOR DEBKIS STUDY TABLE A-3 | X. | | | |
| | INVENTORY SL | MMARY OF | REMOVAL CO | INVENTORY SUMMARY OF REMOVAL COSTS OF DEBRIS SOURCES IN WEYMOUTH | SOURCES II | WEYMOUTH | * | |
| | Item | Number of Sites | Quantity Floatable (Cy) | of Material Non-Floatable (tons) | Total Removal Cost | Total Disposal Cost | Total Total Reconstruction Cost | Total** Cost |
| ė | Waterfront Structures | | | | | | | : ! |
| | 1. Dilapidated - not in use | 10 | 6,210 | | 11,298 | 2,857 | | 14,155 |
| | 2. Dilapidated - in use | | | | | | | |
| | 3. Portions Dilapidated - not to be repaired | | | | | | | |
| | 4. Portions Dilapidated - to be repaired | 1 | 100 | | 469 | 46 | 7,700 | 515 |
| œ. | Der | | | | | | | |
| | 1. Timber | | | | | | | |
| | 2. Steel | 12 | | NOT PART OF | CLEANUP PE | PROGRAM | | |
| J J | Loose On-Shore Debris (Floatables) | 21 | 16,400 | | 39,360 | 7,544 | | 46,904 |
| o. | | | | | | | | |
| ы | Shorefront Rubbish Dumps | | N/A | | | | | |
| | complete inventory of Corps of Engineers, Wa | of sources of Waltham, MA | 9 4 | debris is available at | | a U s | PLANNING DIVISION COASTAL DEVELOPMENT | t.NI |
| | **E & D and S & A costs not i | not included | | | | J | FOR NAVIGATION Sheet | 1 of 6 |

Appendix 4 A-6 Inventory Update September 1976 Total** 204 572 Reconstruction Cost 7191 Jun A-22 Total Cost INVENTORY SUMMARY OF REMOVAL COSTS OF DEBRIS SOURCES IN BRAINTREE * Disposal 46 92 Total Cost Total Removal Cost 158 480 BOSTON HARBOR DEBRIS STUDY Floatable Non-Floatable Quantity of Material (tons) N/A TABLE A-4 (CX) 100 200 Number Sites o F ~ H Dilapidated - not in use Derelict (Wrecked) Vessels 3. Portions Dilapidated not to be repaired 4. Portions Dilapidated Dilapidated - in use Waterfront Structures Loose On-Shore Debris Shorefront Rubbish to be repaired Drift Collection Item (Floatables) 1. Timber 2. Steel Ä. æ. Ġ ပ

Appendix A-7

Dumps

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*The complete inventory of sources of debris is available at

NED Corps of Engineers, Waltham, MA

**E & D and S & A costs not included

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COASTAL DEVELOPMENT FOR NAVIGATION

Sheet

PLANNING DIVISION

| - 1 | Inventory Update September 1976 July 1977 A-26 | | N OUINCY * | Total Total Total** Disposal Reconstruction Cost Cost | | 22,111 | 4,324 158,950 28,380 | | 790 12,500 3,444 | | 10,685 | ROGRAM | 2,760 17,160 | | | PLANNING DIVISION COASTAL DEVELOPMENT |
|-----|---|-----------|-----------------------------------|--|--------------------------|-----------------------------|-------------------------|--|---|-------------------------------|-----------|----------------|-----------------|---------------------|-----------------------------|---|
| | λC | | SOURCES I | Total Removal Cost | | 139,270 | 24,056 | | 2,654 | | 80,503 | CLEANUF RO | 14,400 | | | |
| | BOSTON HARBOR DEBRIS STUDY | TABLE A-5 | COSTS OF DEBRIS SOURCES IN QUINCY | Quantity of Material Floatable Non-Floatable (cy) (tons) | | 52 | 0.75 | | | | 188.5 | NOT PART OF CL | N/A | | N/A | s available at |
| | BOSTON HAR | TAB | REMOVAL CO | Cuantity Floatable (cy) | | 48,720 | 9,400 | | 1,680 | | 23,200 | | 6,000 | | N/A | f debris is |
| | | | SUMMARY OF REMOVAL | Number of Sites | | 15 | 2 | | -1 | | 10 | | 7 | | | of sources of Waltham, MA |
| | | | INVENTORY SU | Item | A. Waterfront Structures | 1. Dilapidated - not in use | 2. Dilapidated - in use | 3. Portions Dilapidated - not to be repaired | 4. Portions Dilapidated - to be repaired | B. Derelict (Wrecked) Vessels | 1. Timber | 2. Steel | C. (Floatables) | D. Drift Collection | Shorefront Rubbish Dumps | *The complete inventory of s NED Corps of Engineers, Wal |

Inventory Update September 1976 July 1977

July 19' A-32

BOSTON HARBOR DEBRIS STUDY

TABLE A- 6

INVENTORY SUMMARY OF REMOVAL COSTS OF DEBRIS SOURCES IN BOSTON *

| | | | Number | Quantity | Quantity of Material | Total | Total | Total | Total** |
|---------|----|--|--------------|----------------|--|-----------------|-------------------------------|--|-----------|
| | | Item | of Sites | Floatable (cv) | Floatable Non-Floatable (cy) (tons) | Removal Cost | Removal Disposal Cost Cost | Reconstruction Cost | Cost |
| | Ä | Waterfront Structures | | | | | | | |
| | | 1. Dilapidated - not in use | 98 | 1,325,900 | 3,523 | 3,296,376 | 623,173 | | 3,919,549 |
| | | 2. Dilapidated - in use | 16 | 400,150 | 45 | 1,336,865 | 188,071 | 6,481,027 | 1,524,936 |
| | | 3. Portions Dilapidated - not to be repaired | 20 | 98,330 | | 333,837 | 46,215 | | 380,052 |
| | | 4. Portions Dilapidated - to be repaired | 22 | 116,120 | | 413,773 | 55,196 | 962,926 | 468,969 |
| | B. | Derelict (Wrecked) Vessels | | | | | | | |
| | | 1. Timber | 36 | 196,600 | 73.1 | 688,222 | 93,217 | | 781,439 |
| | | 2. Steel | 80 | | NOT PART OF CLEANUP PROGRAM | LEANUP PRO | GRAM | | |
| | ບ | Loose On-Shore Debris (Floatables) | 59 | 66,200 | N/A | 158,880 | 31,114 | | 189,994 |
| | ٥. | Drift Collection | | | | | | | |
| App | ъ. | Shorefront Rubbish Dumps | 5 | | | | | | |
| endix 4 | | complete inventory Corps of Engineers, | of sources o | f debris is | of sources of debris is available at Waltham, MA | | <u> </u> | PLANNING DIVISION COASTAL DEVELOPMENT FOR NAVIGATION | n Ent |
| | | **E & D and S & A costs not i | not included | | | | | - 1 | 1 of 18 |

Appendix A-9

The state of the s

Inventory Update 9,382 September 1976 July 1977 Total** of Reconstruction Cost COASTAL DEVELOPMENT PLANNING DIVISION FOR NAVIGATION Sheet A-50 Tota1 Cost INVENTORY SUMMARY OF REMOVAL COSTS OF DEBRIS SOURCES IN CAMBRIDGE Removal Disposal 2,021 Total Cost CLEANUP PROGRAM 7,361 Total Cost BOSTON HARBOR DEBRIS STUDY Floatable Non-Floatable *The complete inventory of sources of debris is available at NOT PART OF Quantity of Material (tons) N/A TABLE A-7 4,300 (cy) NED Corps of Engineers, Waltham, MA Number **E & D and S & A costs not included Sites of 7 1. Dilapidated - not in use Derelict (Wrecked) Vessels not to be repaired Portions Dilapidated Portions Dilapidated Dilapidated - in use Waterfront Structures Loose On-Shore Debris Shorefront Rubbish to be repaired Drift Collection Item (Floatables) 1. Timber 2. Steel Dumps 3 Ġ Ä æ. ပ ы ы

Appendix 4 A-10 Inventory Update September 1976 July 1977 5,740 Total** 23,046 Reconstruction Cost COASTAL DEVELOPMENT PLANNING DIVISION A-52 FOR NAVIGATION Total Set INVENTORY SUMMARY OF REMOVAL COSTS OF DEBRIS SOURCES IN SOMERVILLE * Total Total Removal Disposal Cost Cost 940 4,418 NOT PART OF CLEANUP PROGRAM 4,800 18,628 BOSTON HARBOR DEBRIS STUDY Cuantity of Material Floatable Non-Floatable *The complete inventory of sources of debris is available NED Corps of Engineers, Waltham, MA (tons) Š S TABLE A-8 9,400 (cs) 2,000 Number **E & D and S & A costs not included Sites --Dilapidated - not in use Derelict (Wrecked) Vessels 3. Portions Dilapidated Portions Dilapidated Dilapidated - in use not to be repaired Loose On-Shore Debris Waterfront Structures Shorefront Rubbish to be repaired Drift Collection Item (Floatables) 1. Timber 2. Steel á ë 8 E. ပ

The state of the s

Inventory Update 4,286 107,338 549,178 69,047 29,916 187,938 September 1976 July 1977 Total** Reconstruction Cost of COASTAL DEVELOPMENT PLACINING DIVISION Sheet 1 FOR NAVIGATION A-55 329,520 167,037 Total Cost INVENTORY SUMMARY OF REMOVAL COSTS OF DEBRIS SOURCES IN CHELSEA Removal Disposal 658 3,430 7,073 17,578 22,419 93,859 Total OF CLEANUP PROGRAM 89,760 165,519 61,974 3,628 26,486 455,319 Total BOSTON HARBOR DEBRIS STUDY Floatable Non-Floatable *The complete inventory of sources of debris is available at NED Corps of Engineers, Waltham, MA Quantity of Material 13.75 NOT PART (tons) N/A 40 N/A TABLE A- 9 102 7,300 1,400 (CX) 47,700 37,400 199,700 15,050 N/A Number **E & D and S & A costs not included Sites jo S 18 14 1. Dilapidated - not in use Derelict (Wrecked) Vessels Portions Dilapidated not to be repaired Portions Dilapidated Dilapidated - in use Loose On-Shore Debris Waterfront Structures Shorefront Rubbish to be repaired Drift Collection Item (Floatables) 1. Timber 2. Steel Dumps æ, ż ပ å 다.

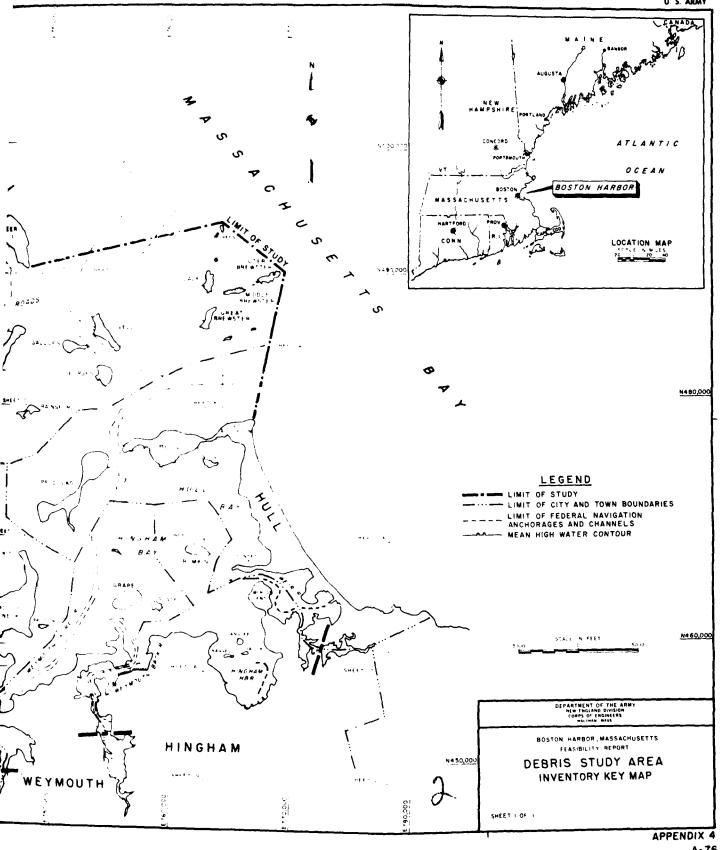
| | | | | | | | Inventory September July 1977 | ry Update er 1976 177 |
|----------|---|-----------------------|-----------------------|--|--------------------------|---------------------------|--|-----------------------------|
| | | | BOSTON HAI | BOSTON HARBOR DEBRIS STUDY | λ | | A-62 | |
| | | | TAI | TABLE A-10 | | | | |
| | INVENTORY SU | DEMARY OF | REMOVAL CO | RY SUMMARY OF REMOVAL COSTS OF DEBRIS SOURCES IN EVERETT | SOURCES IN | | | |
| 1 | Item | Number of Sites | Quantity Floatable | of Material Non-Floatable (tons) | Total Removal Cost | Total Disposal Cost | Total Total Reconstruction Cost | Total** Cost |
| | A. Waterfront Structures | | | | | | | |
| | 1. Dilapidated - not in use | 2 | 174,300 | 318 | 378,054 | 81,921 | | 459,975 |
| | 2. Dilapidated - in use | | | | | | | |
| | Portions Dilapidated - not to be repaired | 1 | 4 00 | 0 | 2,140 | 188 | 12,096 | 3,020 |
| | 4. Portions Dilapidated - to be repaired | | | | | | | |
| an . | B. Derelict (Wrecked) Vessels | | | | | | | |
| | l. Timber | | | | | | | |
| | 2. Steel | 7 | | NOT PART OF CLEANUP PROGRAM | EANUP PRO | RAM | | |
| | C. Loose On-Shore Debris (Floatables) | 5 | 9,000 | N/A | 21,600 | 4,230 | | 25,830 |
| <u> </u> | D. Drift Collection | | | | | | | |
| | Shorefront Rubbish Dumps | | N/A | N/A | | | | |
| 5.3 | *The complete inventory of a NED Corps of Engineers, Wal | of sources o | f debris is | of sources of debris is available at, Waltham, MA | | P4 (2) E4 | PLANNING DIVISION COASTAL DEVELOPMENT FOR NAVIGATION | ENT |
| | **E & D and S & A costs not | not included | | | | | - } | 1 of 5 |

Appendix 4 A-13 Inventory Update September 1976 July 1977 4,305 23,344 11,820 Total** Total
Reconstruction Cost
Cost PLANNING DIVISION COASTAL DEVELOPMENT FOR NAVIGATION Sheet 1 of A-67 INVENTORY SUMMARY OF REMOVAL COSTS OF DEBRIS SOURCES IN REVERE * Removal Disposal 705 1,786 1,410 Total NOT PART OF CLEANUP PROGRAM 3,600 21,558 10,410 Total BOSTON HARBOR DEBRIS STUDY Floatable Non-Floatable *The complete inventory of sources of debris is available at NED Corps of Engineers, Waltham, MA Quantity of Material (tons) 123 N/A N/A TABLE A-11 (cx) 3,800 3,000 1,500 K K Number **E & D and S & A costs not included Sites Jo m ~ m Dilapidated - not in use Derelict (Wrecked) Vessels not to be repaired
4. Portions Dilapidated 3. Portions Dilapidated Dilapidated - in use Waterfront Structures Loose On-Shore Debris Shorefront Rubbish to be repaired Drift Collection Item (Floatables) 1. Timber 2. Steel Ä В. ပ Ġ 며.

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Inventory Update September 1976 July 1977 A-71 INVENTORY SUMMARY OF REMOVAL COSTS OF DEBRIS SOURCES IN WINTHROP * BOSTON HARBOR DEBRIS STUDY TABLE A-12

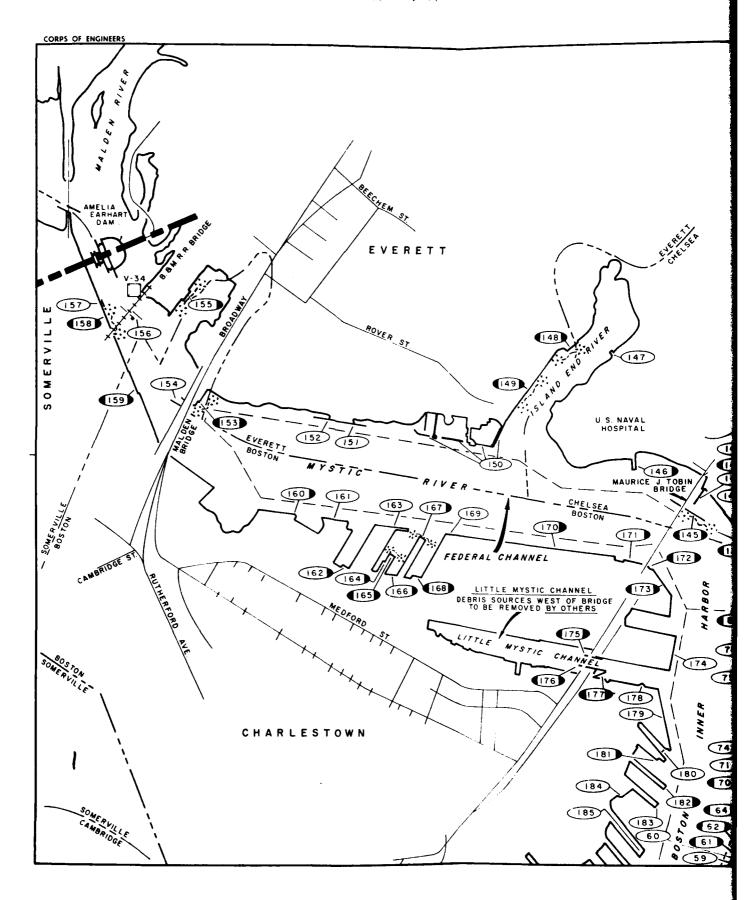
| | | Number | Quantity | of Material | Total | Total | Total | Total** |
|----|---|--------------|----------------|---|-----------------|-------------------------------|--|----------------------|
| | Item | of | Floatable (cv) | Floatable Non-Floatable (cv) (tons) | Removal Cost | Removal Disposal Cost Cost | Reconstruction Cost Cost | Cost |
| ď | Waterfront Structures | | | | | | | |
| | 1. Dilapidated - not in use | 9 | 25,000 | | 961,795 | 11,750 | | 73,545 |
| | 2. Dilapidated - in use | | | | | | | |
| | 3. Portions Dilapidated not to be repaired | 2 | 1,000 | | 7,630 | 470 | | 7,500 |
| | 4. Portions Dilapidated - to be repaired | | | | | | | |
| æ | Der | | | | | | | |
| | 1. Timber | 1 | 1,000 | 1.5 | 3,470 | 470 | | 3,940 |
| | 2. Steel | | | NOT PART OF C | CLEANUP PROGRAM | GRAM | | |
| ပ် | Loose On-Shore Debris (Floatables) | • | 2,300 | N/A | 5,520 | 1,081 | | 6,601 |
| o. | Drift Collection | | | | | | | |
| ε. | Shorefront Rubbish Dumps | | N/A | N/A | | | | |
| | complete inventory Corps of Engineers | of sources o | f debris is | of sources of debris is available at, Waltham, MA | | A, O Eq | PLANNING DIVISION COASTAL DEVELOPMENT FOR NAVIGATION Sheet 1 | NN IENT 1 of 5 |
| | 71 | THETTOREG | | | | | | |



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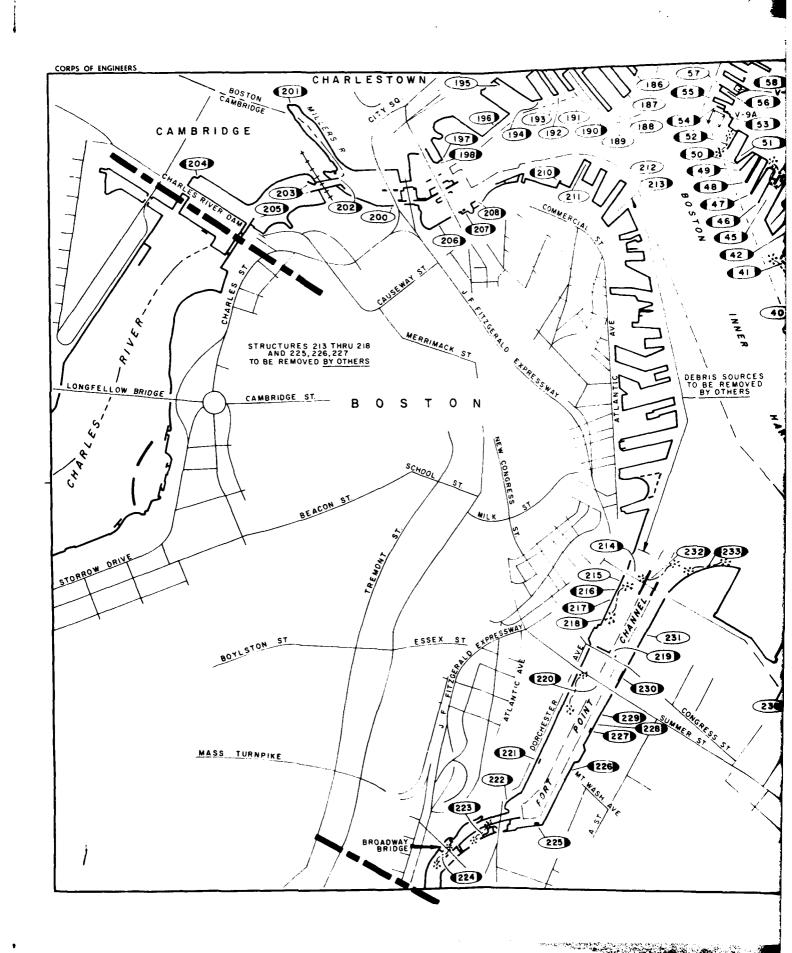
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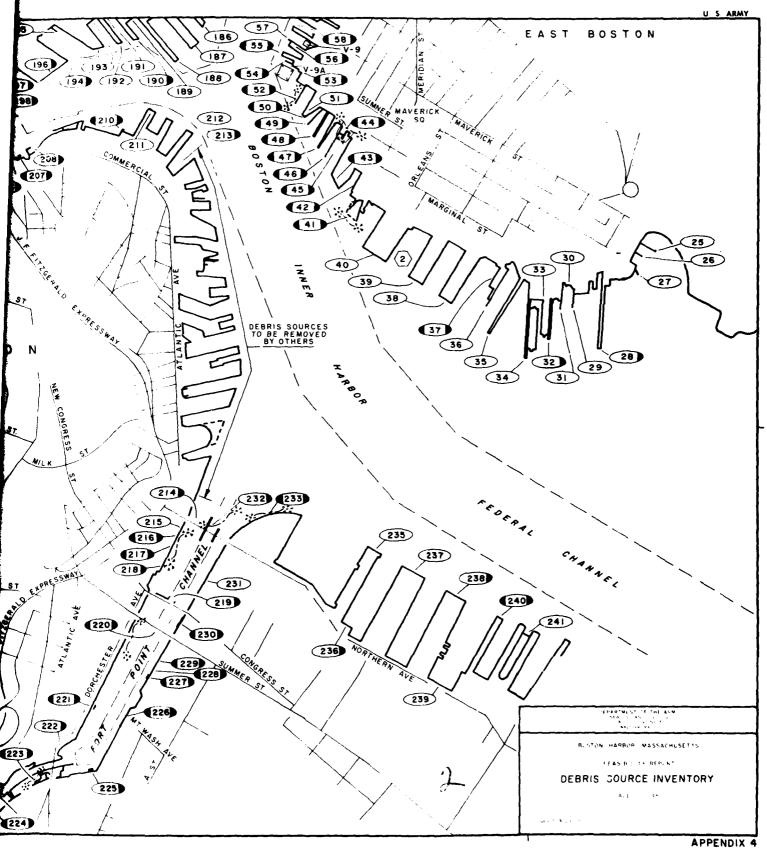
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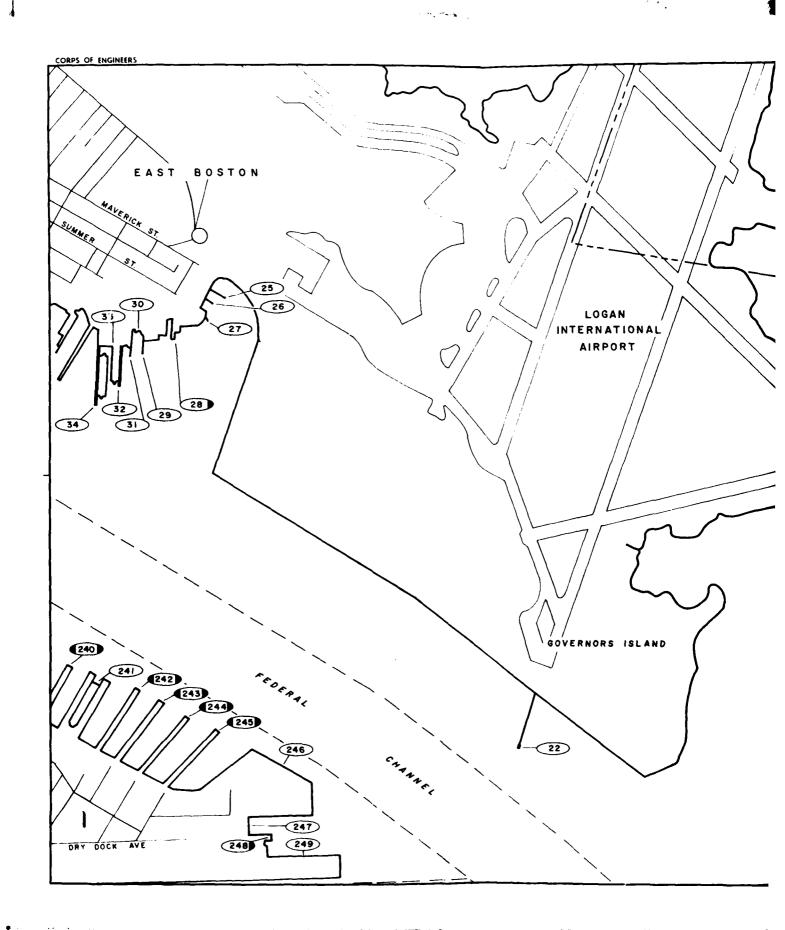
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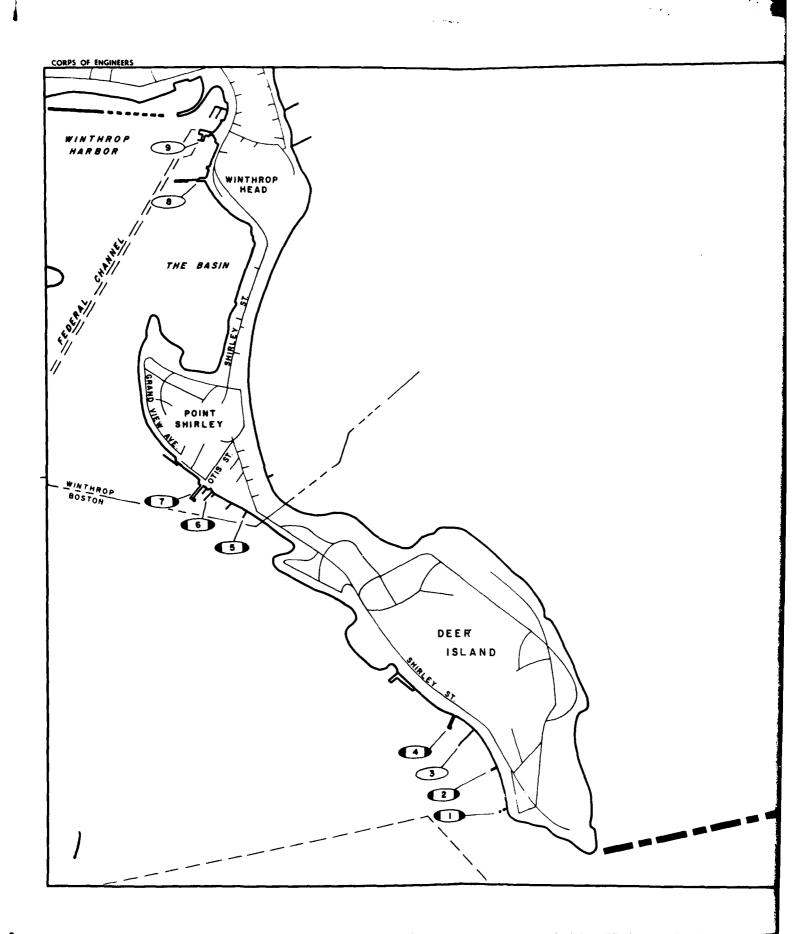


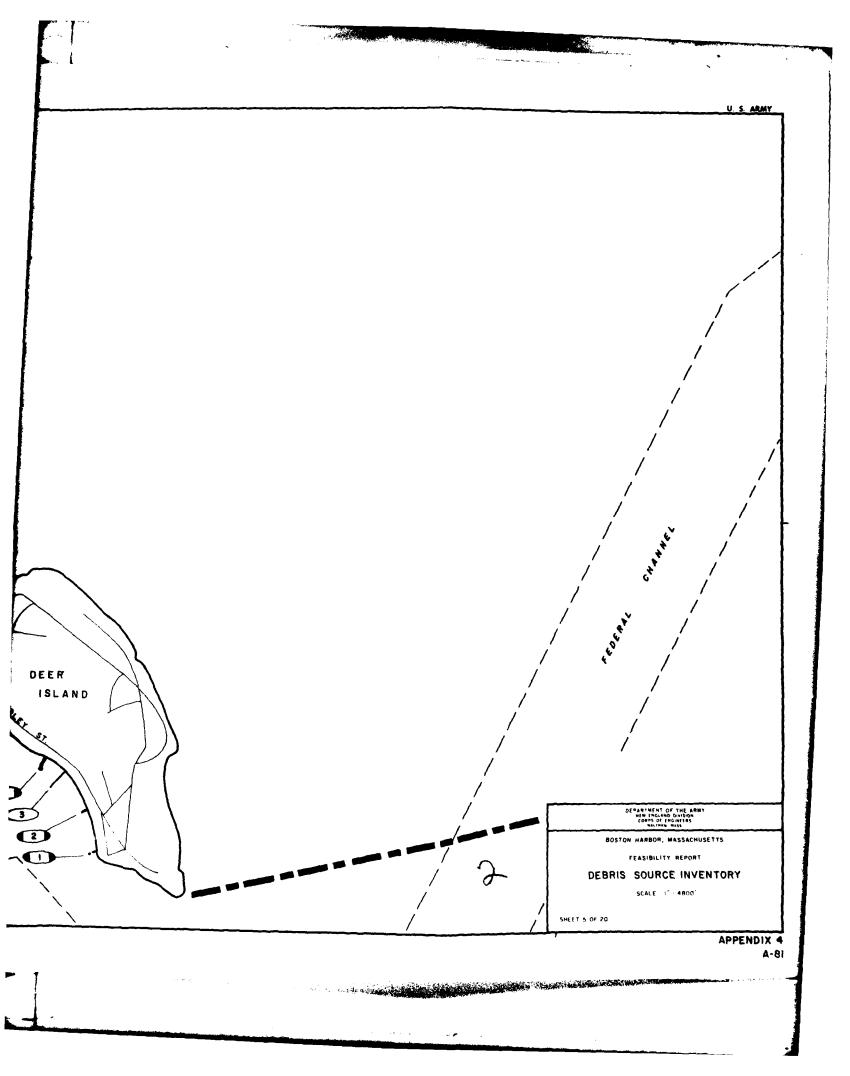


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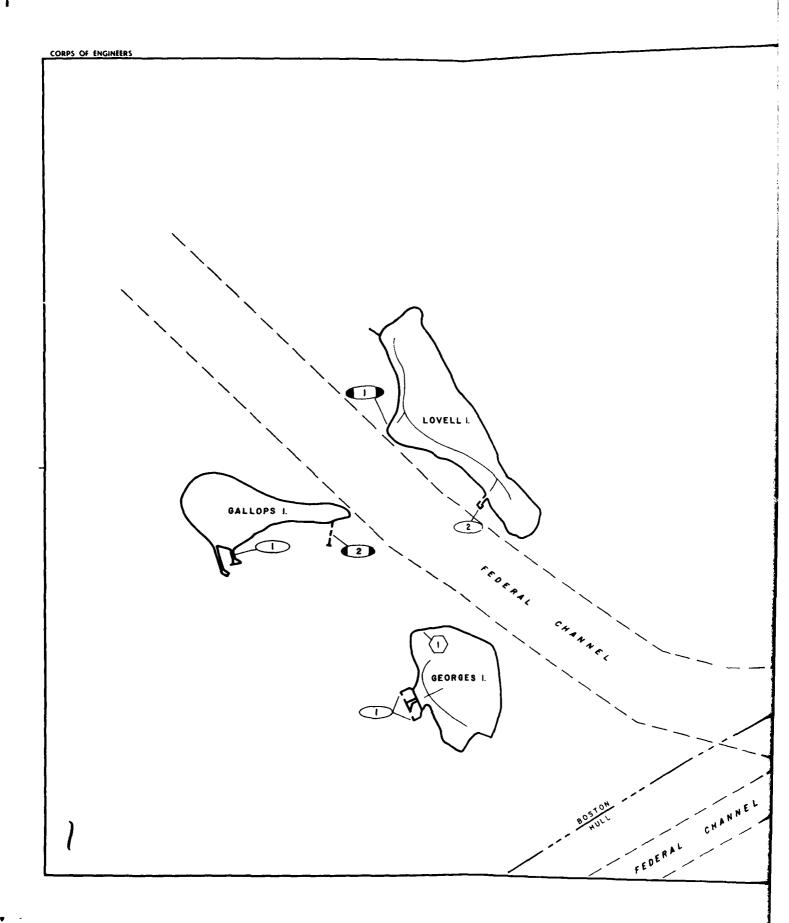
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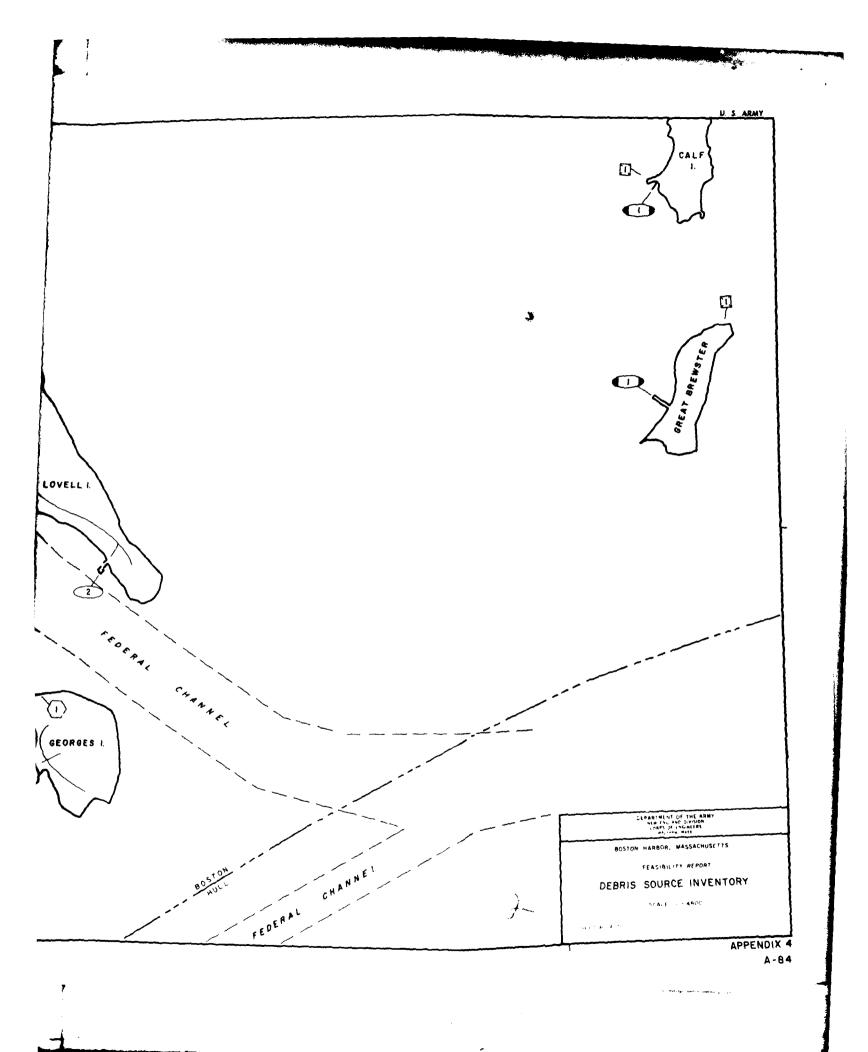
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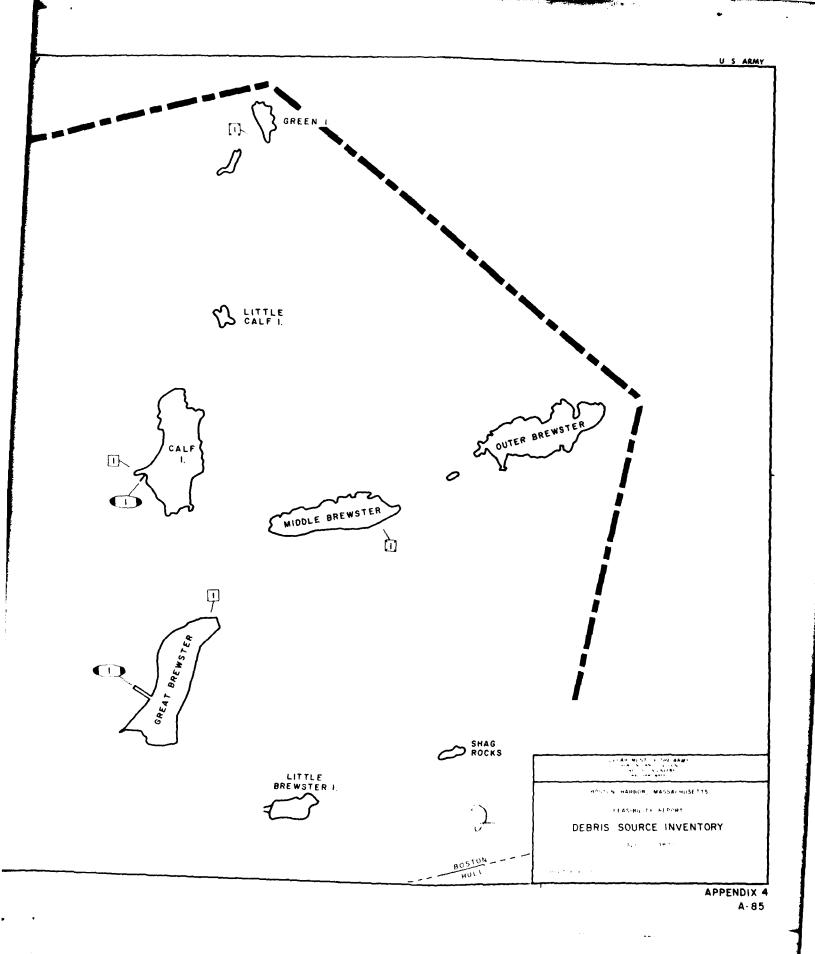
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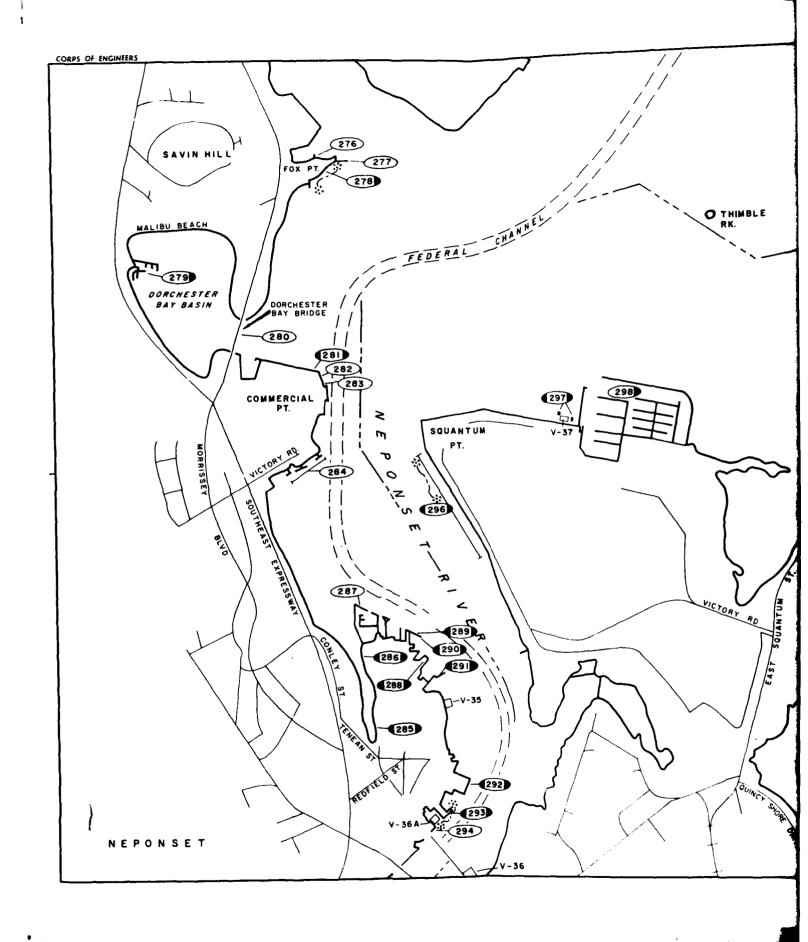
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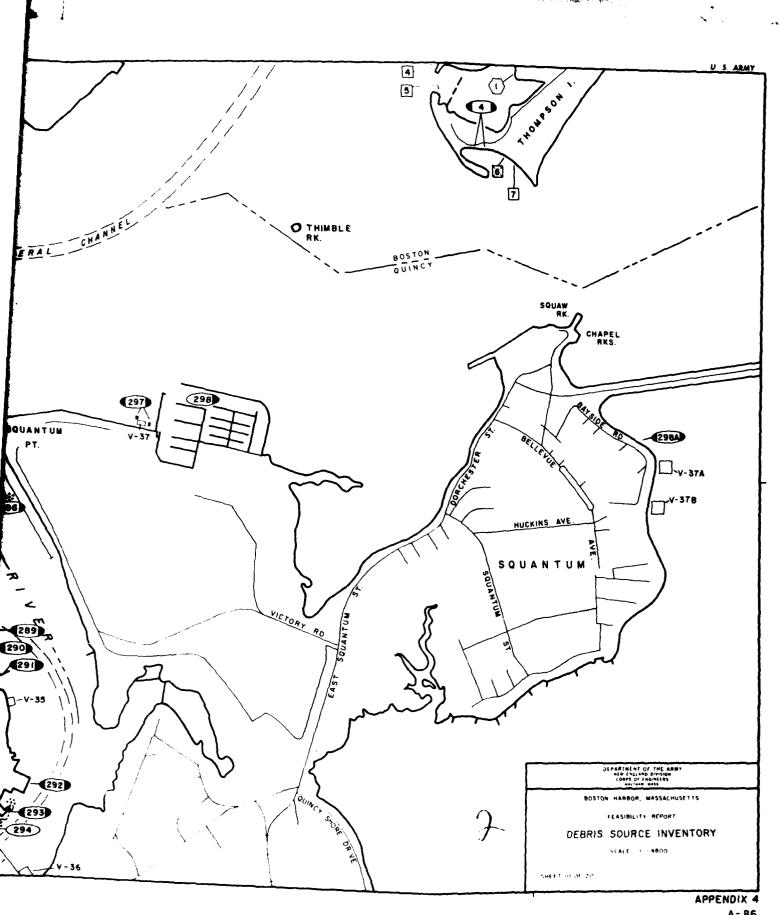
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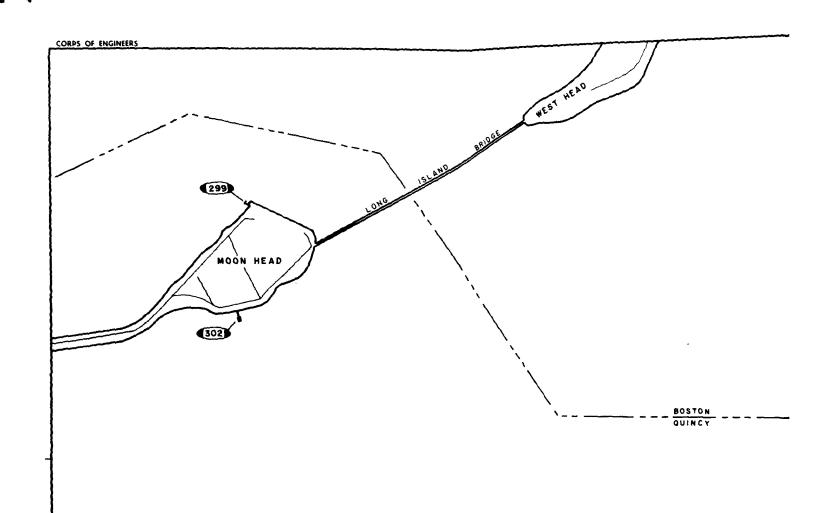




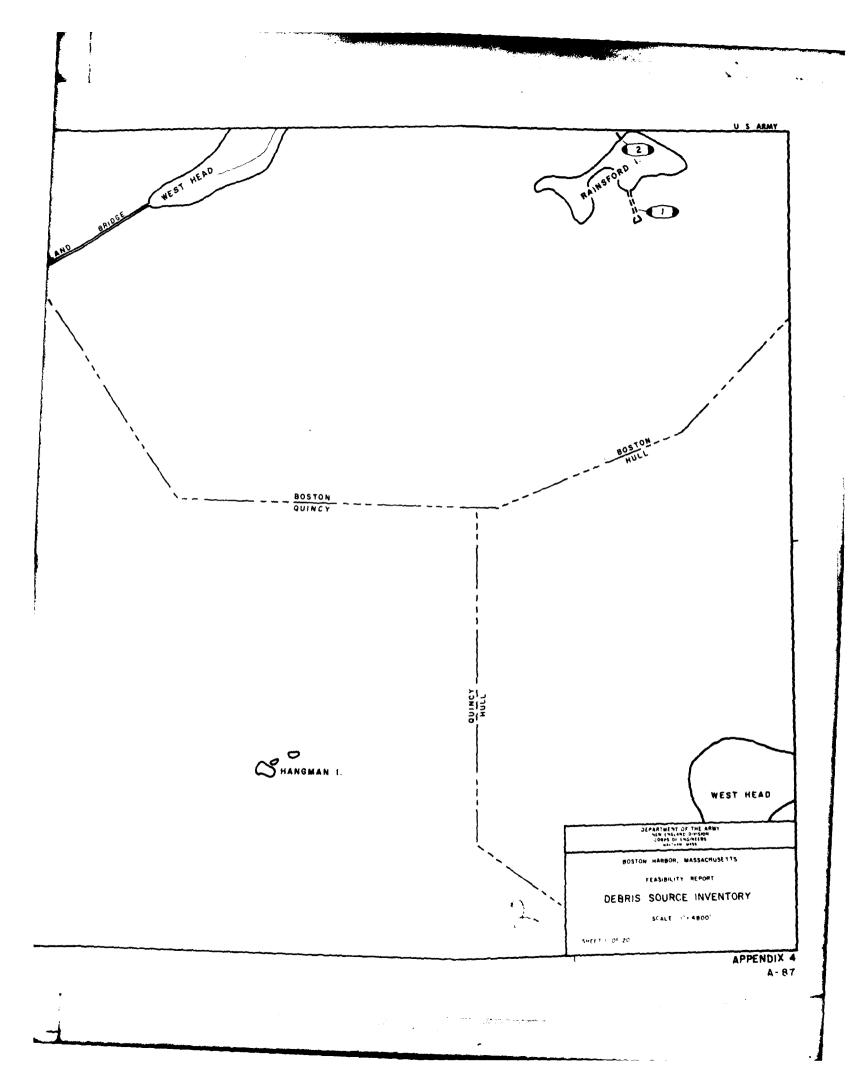


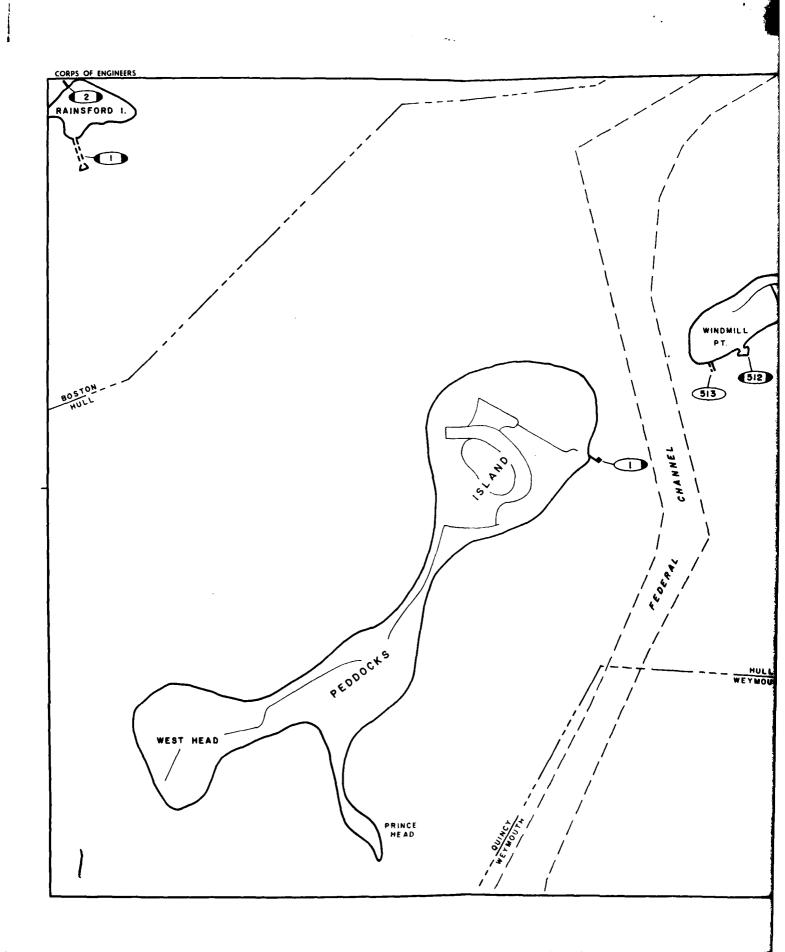


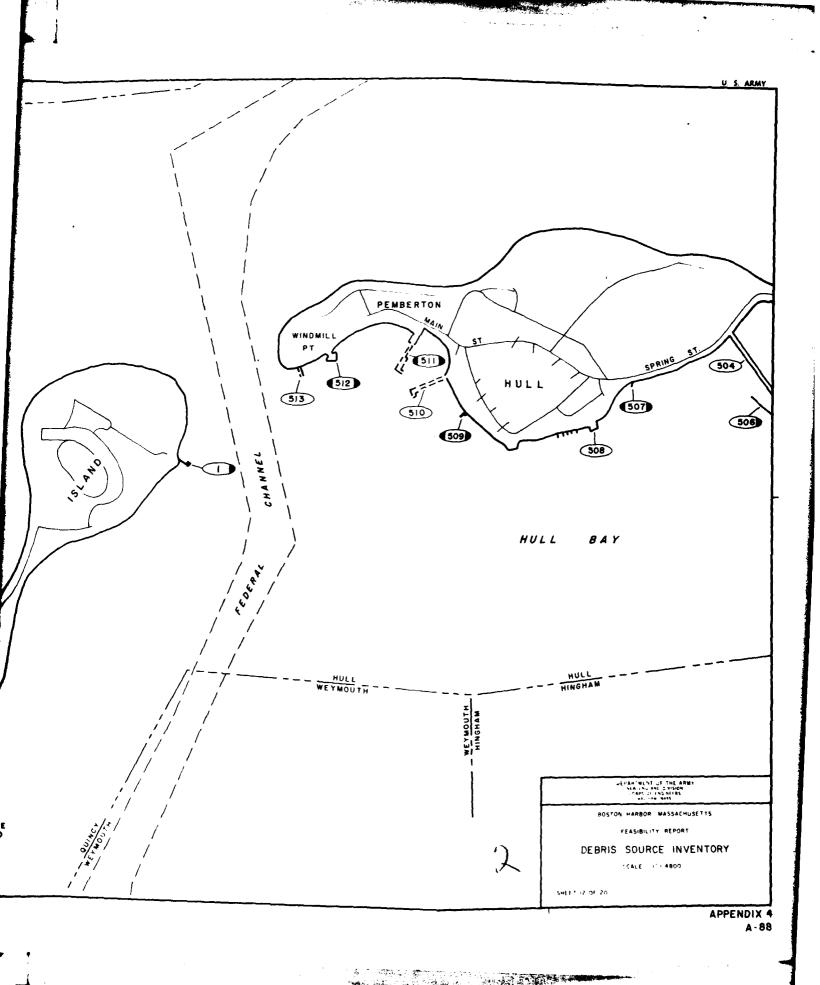
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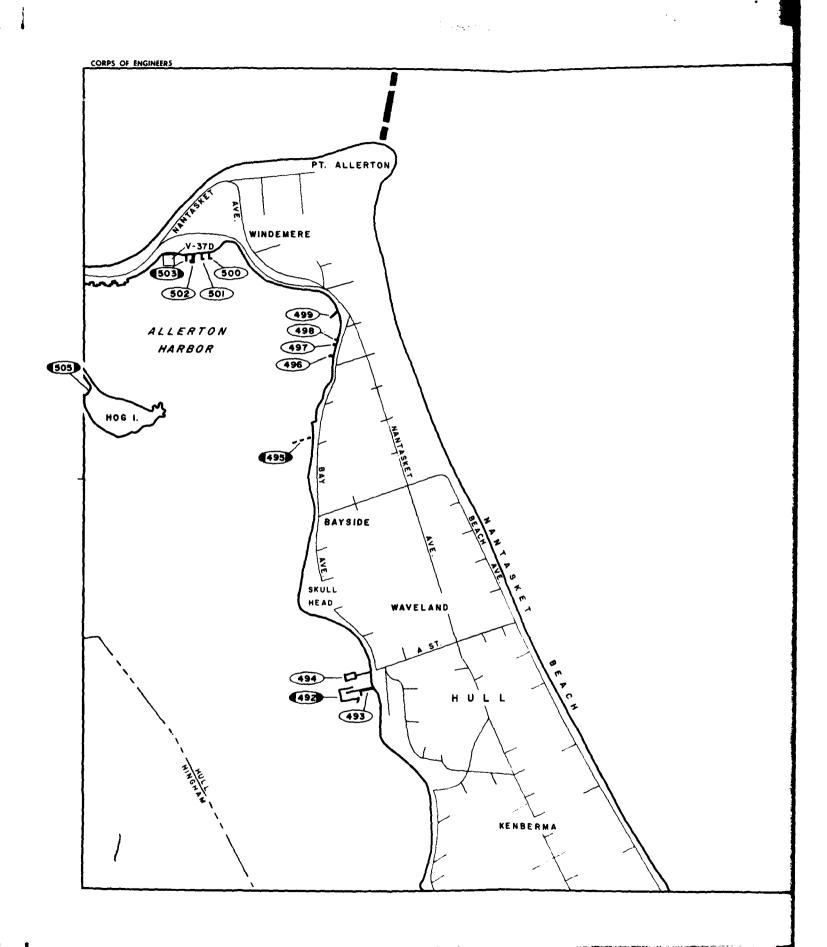


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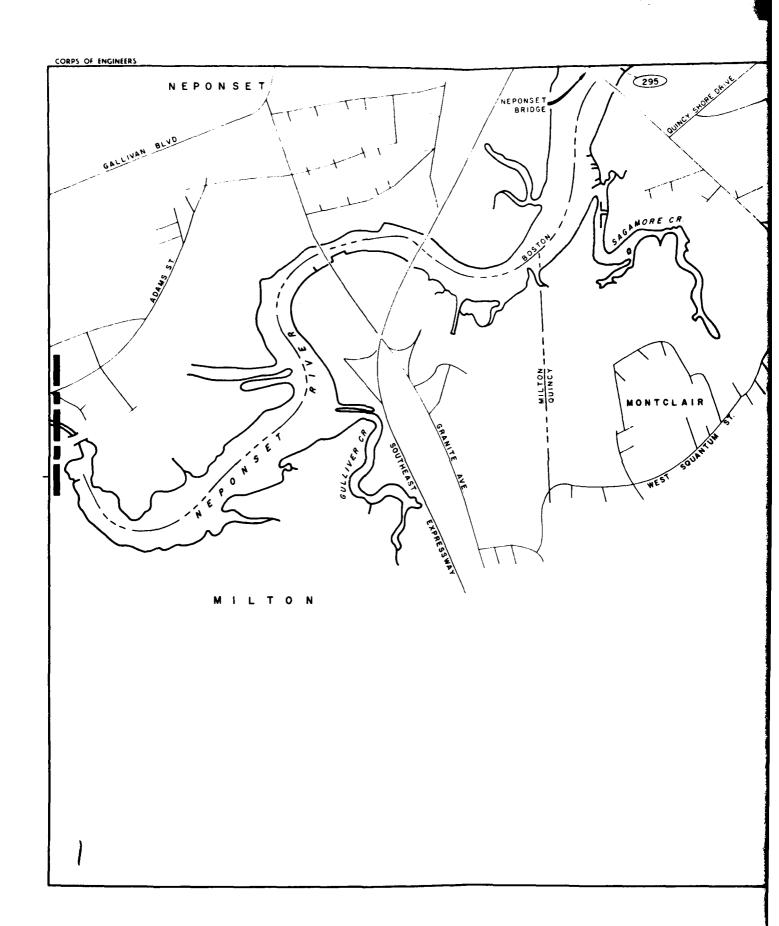








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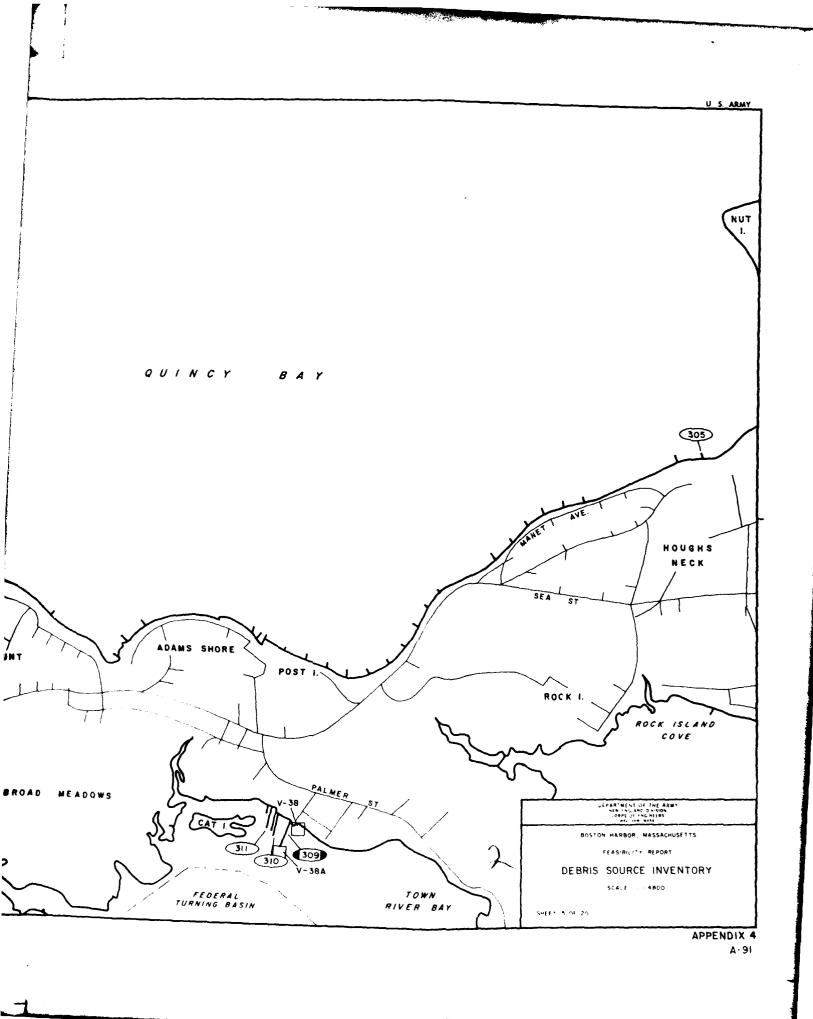


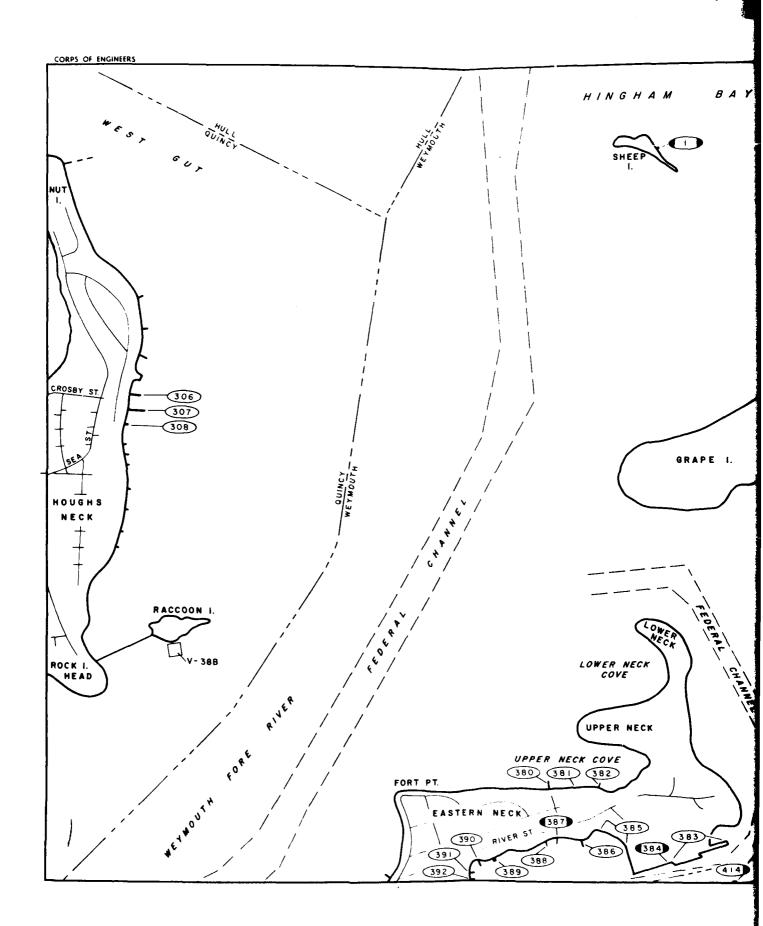
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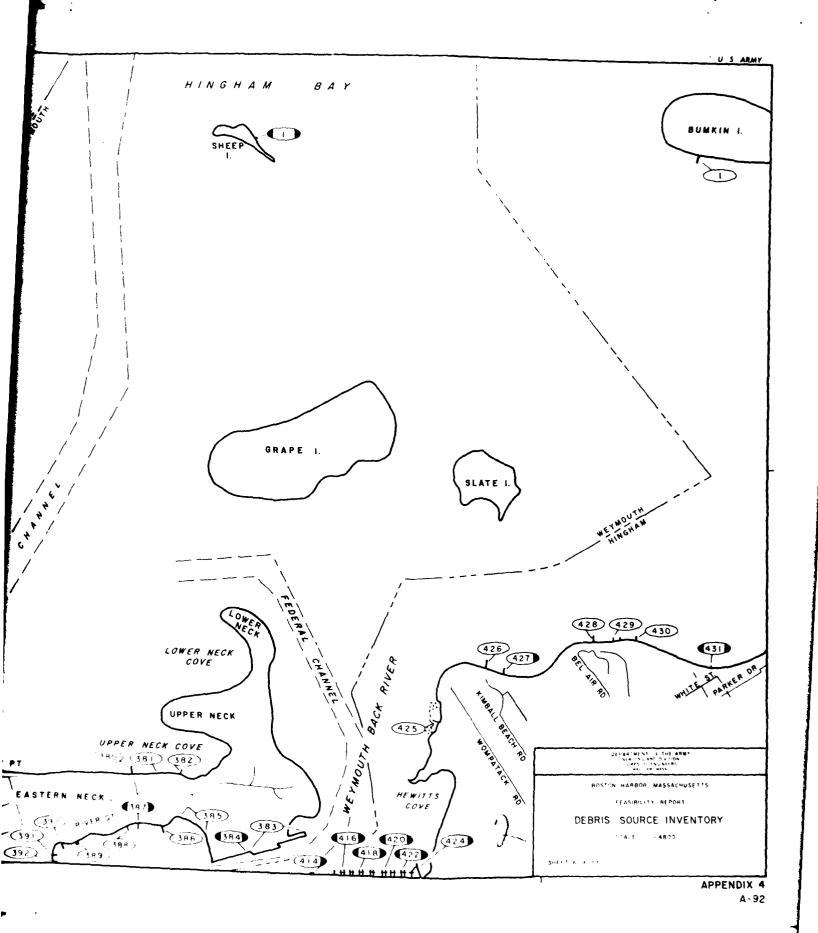
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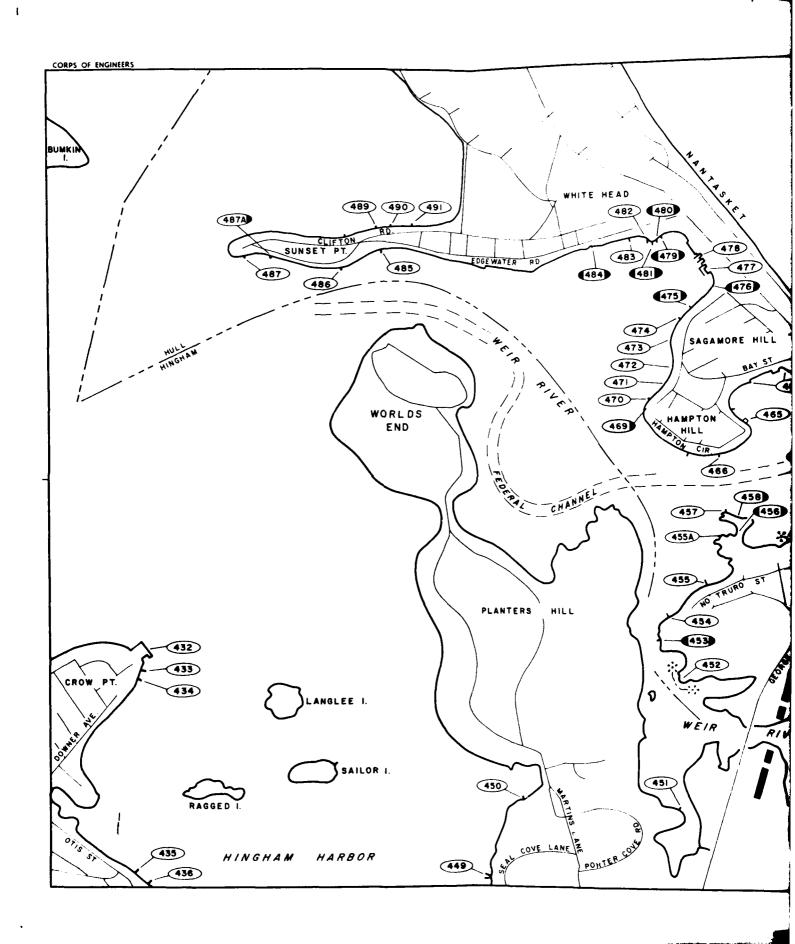
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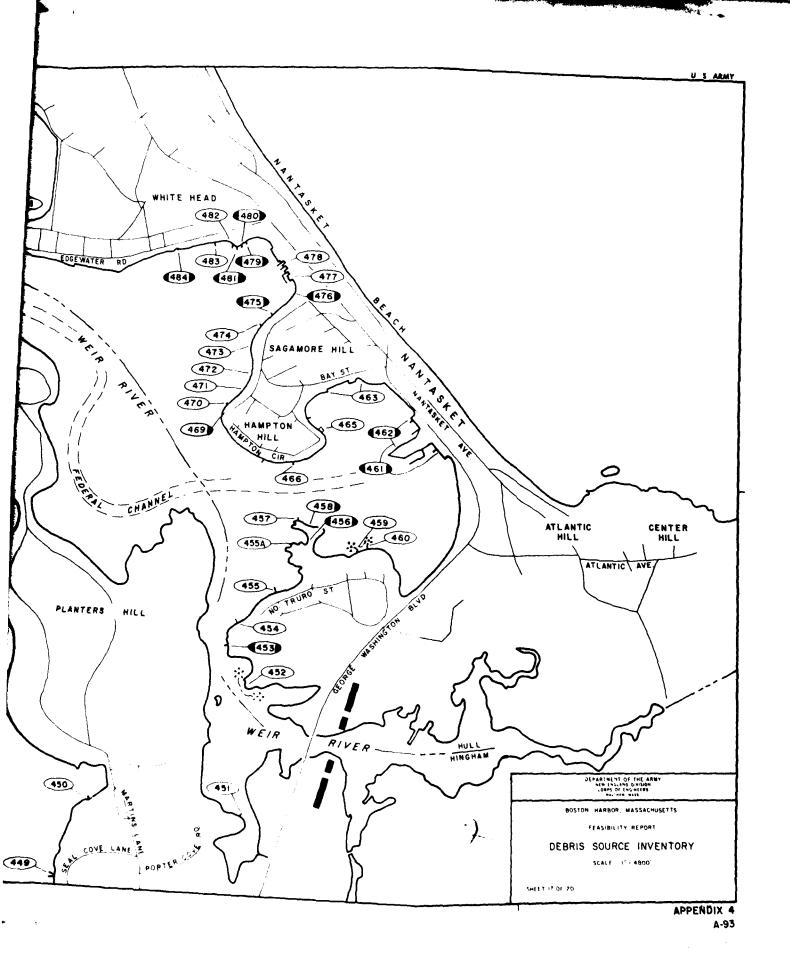
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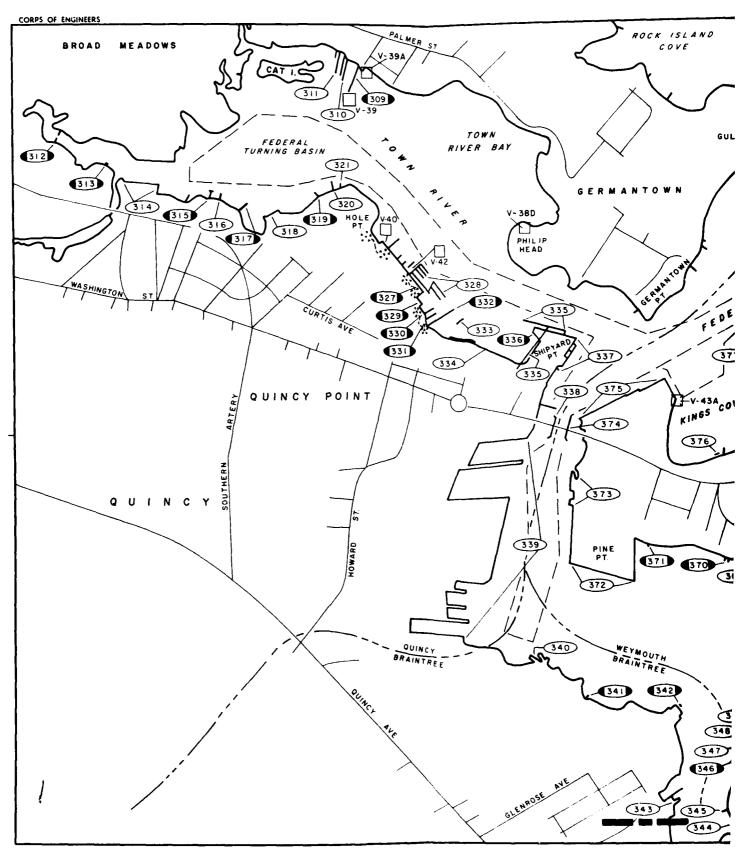


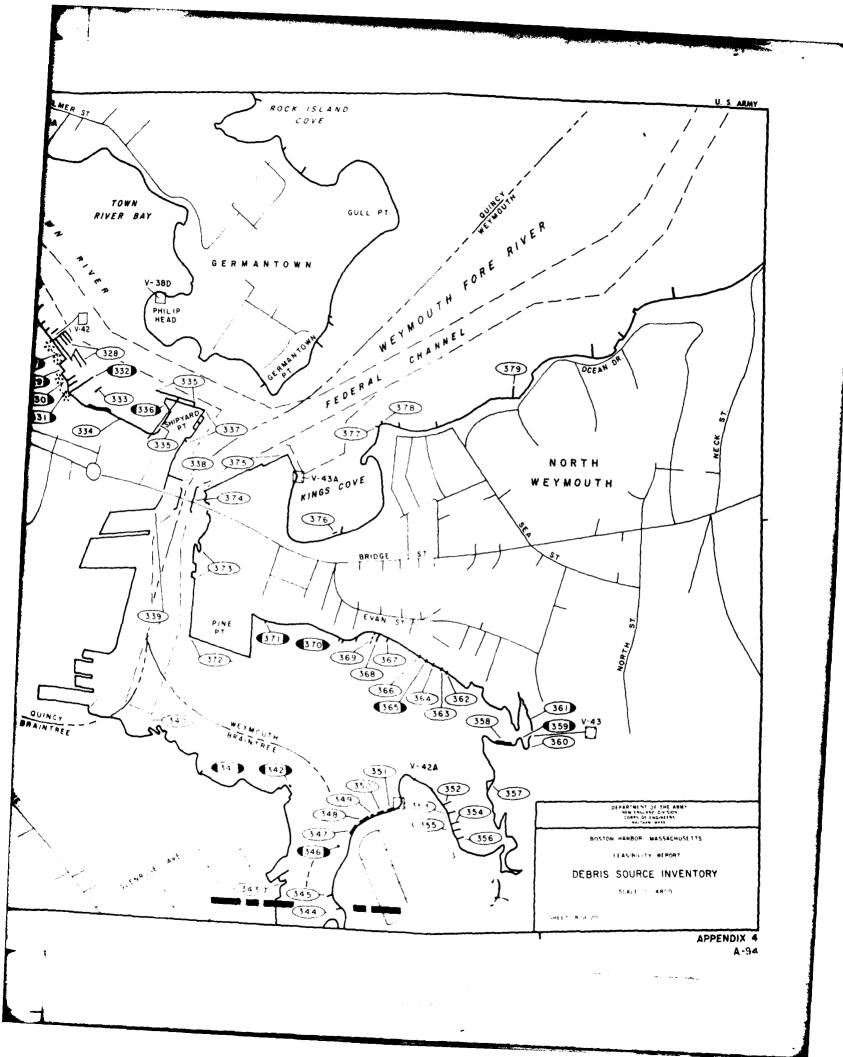


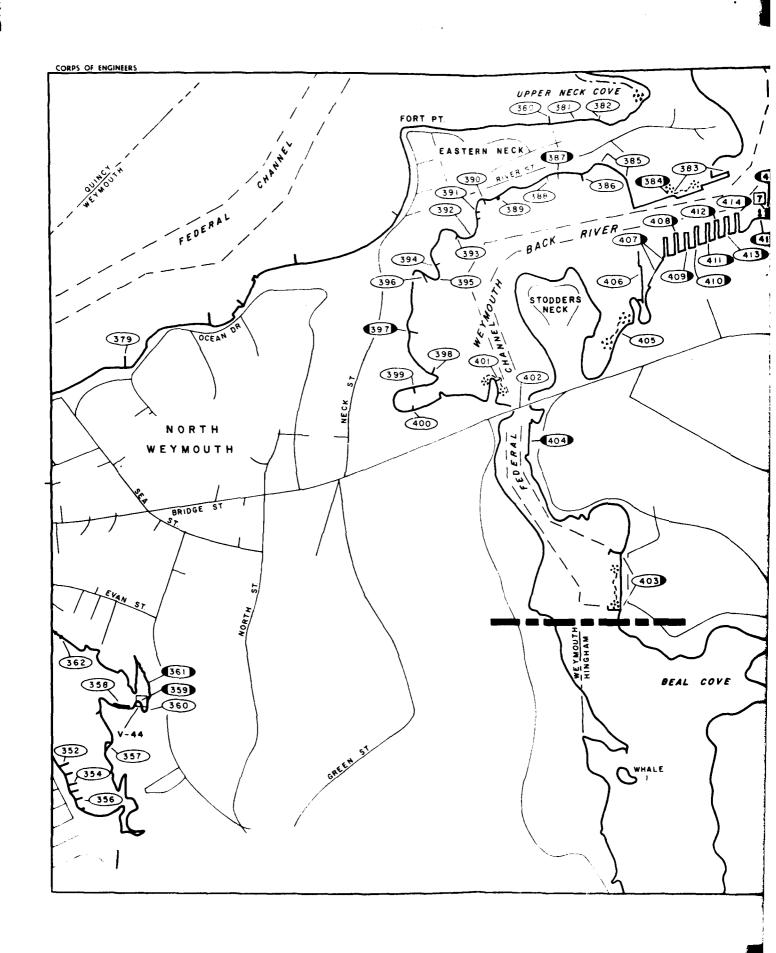


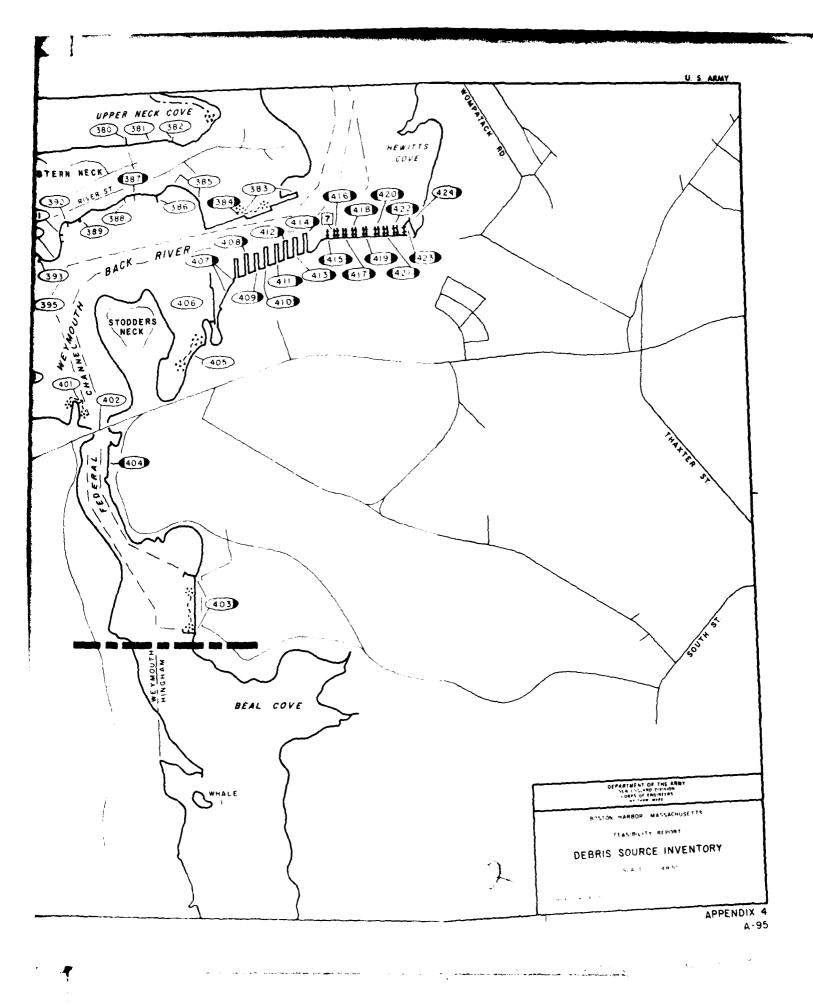


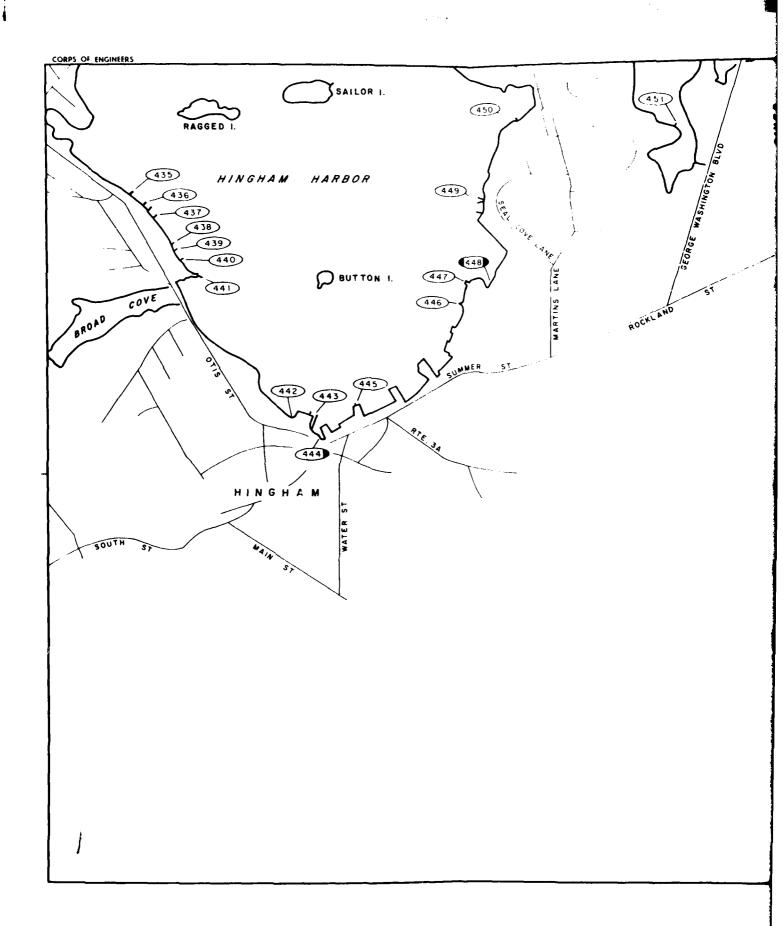












450 (49) MOCK! AND BOSTON HARBOR MATSACHUSETTE FEASIBILITY REPORT DEBRIS SOURCE INVENTORY SCALE THROUGH оневт 2 - 11-20 APPENDIX 4 A-96

BOSTON HARBOR - DEBRIS STUDY

- A Purpose of Chart Showing Data on "Waterfront Structures in Boston Harbor".
- 1. To show the number, kind, location, name, owner, purpose for which used, type and description and condition of all waterfront structures in Boston Harbor.
- 2. To determine from data on chart the amount of materials in and lying on dilapidated waterfront structures, broken down into following categories:
 - (1) Floatable

Wood

Piles

Other type material

(2) Non-Floatable

Conc. (Bit. or Cement)

Stone masonry

Steel

Other type materials

- 3. To determine from data on charts the amount of debris lying along shore.
- B Instruction Sheet for Filling out Chart on "Waterfront Structures in Beston Harbor".
- 1. Kind typical categories are wharf; bulkhead; bridge; marina; dry dock; ferry-pier marine railway; boat ramp; airplane guide-approach light piers; etc.
- 2. Location on Waterfront typical east shore of Chelsea R. (Hingham Bay, etc.), approx. 2.0 miles below Meriden St. Bridge or Vic. of 200 Border St. Adjacent to west side of Chelsea St. Bridge.
- 3. Name to be used usually only in case of commercial wharves. Give name such as Pier #1, Fish Pier, Commonwealth Pier, Rowes Wharf, etc.
- 4. Owner's Name and Address field investigator will, if possible, get this information from local residents or, if necessary, from assessor's records.

5. Purpose for Which Used - Typical replies should be mooring vessels; mooring boats; vehicular parking, etc. In case of bulkheads answer should be "retaining structure". If not in use report, "not in use". Former Use - if possible obtain this information from individuals in immediate area, otherwise report, "unknown".

Type and Description.

a. In the case of wharves typical replies should be one or a combination of the following:

```
Pier, timber pile & deck

" , solid fill, timber bulkhead

" , " " , masonry "

" , steel "

Quay, " " , timber "

" , " " , masonry "

" , " " , steel "
```

Note: A pier or quay type wharf could also include a timber pile and deck extension. If so, report same.

- b. In the case of other "kind" of structures replies should show structure materials (wood, steel, masonry, etc.), and in bridges whether highway or railroad.
- 7. Condition various categories excellent, good, fair, dilabidated. Note: If in dilapidated condition, fill out data on item #8 of chart, otherwise omit. Note: Definition of dilapidated waterfront structure "A waterfront structure fallen into such a state of ruin or decay as to be considered more practicable to entirely remove and replace than to repair."

3. Dimensions and Quantities of Materials in Dilapidated Structures.

- a. Floatable vs. Non-Floatable Ir general, floatable material will be wood, rubber, etc. and non-floatable will be concrete (Portland cement or bitum.), steel, stone masonry, etc.
- h. For all types of piles, give dimension (average length above ground line). If pulled, add estimated length of penetration. All other structural members give dimensions in feet and volume in c.f.
- c. A typical example of presenting the desired data is the following for "wharf, pier type, timber pile with concrete deck".

Appendix 4 A-98

| Structural Member | Floatable Materials | Non-Floatable Materials |
|----------------------|---|----------------------------|
| Timber Piles | | |
| Rearing Piles | 60 @ 11' = 660' | |
| Fender " | 20 @ 1h1 = 2801 | |
| Deck - Concrete | | 40 x 60 x 10 = 500 c.f. |
| Wheelguard - timber | $600 \times 10/12 \times 8/12 = 333 c.f.$ | |
| Pile-caps " | $60(33 \times 8/12 \times 6/12) = 660 c_{\bullet}f_{\bullet}$ | |
| Stringers " | $150(20 \times 4/12 \times 10/12) = 833 c.f.$ | |
| Pile Bracing " | 300(24 x 4/12 x 10/12) = 2,000 c.f. | |
| Tender planks " | 240(20 x 6/12 x 14/12) = 2,800 c.f. | |
| Fender chocks " | $60(12 \times 12/12 \times 16/12) = 960 \text{ c.f.}$ | |
| Fender wales | 36(24 x 10/12 x 10/12) = 600 c.f. | |

9. Materials Lying On Dilapidated Structures.

- a. A typical description of materials encountered, including a combination thereof, might be: timber piles, miscellaneous timbers, metal barrels, lobster traps, junk, etc.
- b. For quantity of materials, give dimension or number of items and convert one or both to a volume in c.f. and list in appropriate space on chart.

10. Debris Lying Along Shore.

- a. Location of debris should be shown in relation to its proximity to the nearest waterfront structure "between structure nos. μ and μ or "in vicinity of no. μ .
- b. Kind of material, including a combination thereof, might be loose debris, tires, barrels, timber piles, etc.
- c. Estimate the total quantity of debris at each location in $C_{\bullet}F_{\bullet}$ and list in appropriate space on chart.

Appendix 4 A-99

DEPARTMENT OF THE ARMY NEW ENGLAND DIVISION. CORPS OF ENGINEERS WALTHAM, MASS

BOSTON HARBOR DEBRIS STUDY WATERFRONT STRUCTURES IN BOSTON HARBOR

| STRUCTURE LOCAT | ION SHOWN ON MAP NO | | TURE REFERENCE NO. | | NAME |
|----------------------|---|--|--------------------|------------------|------------------------------------|
| 1 KIND | | | | SKETC | H SHOWING ST |
| 2 LOCATION ON WATE | RFRONT | | | | |
| 3 <u>NAME</u> | | | | | |
| OWNER'S NAME & AL | | | | | |
| 5 PURPOSE (PRIMARY) | FOR WHICH STRUCTURE USED PRESENT USE | | | | |
| | FORMER USE | | | | |
| 6 TYPE AND DESCRIPT | | | | | |
| 7 CONDITION | | | | | |
| B QUANTITIES OF MATE | RIALS IN DILAPIDATED STRUCTUR | RES | | | |
| STRUCTURAL MEMBER | FLOATABLE MATERIAL | | NON-FLOATABLE MATE | RIAL | MATERIALS (|
| | of DEBRIS SOURCES, Report Here in al Structure and What Percent Remain | | | | WOOD CONCRE STONE N STEEL |
| | | | | | OTHER _ PILES Rec |
| | | | | | TVDE N |
| | | | | | Fend No Lei |
| | | | | | Steel Fill out col |
| | er Er alle | - | | | *Assume for Fender, 10 |
| MATERIALS LYING ON | | | | | F <u>LOATABLE</u> |
| DESCRIPTION | FLOATABLE MATERIAL DIMENSIONS OR NO | VOL -C F | NON-FLOATABLE MATE | RIAL VOL -C.F | IN PILES " |
| DEBRIS LYING ALONG | SHORE | - | | | IN OTHER M |
| TWEEN STRUC NOS | AND TYPE OF | MATERIAL | ESTIMATED QUANT | ITY-CF. | 'Ass |
| | | | | | AS |

DEPARTMENT OF THE ARMY NEW ENGLAND DIVISION CORPS OF ENGINEERS WALTHAM MASS

| BOSTON HARBOR DEBRIS STUDY | | JDY DATE STRUCTURE EXAMINED |
|--|--|--|
| WATERFRONT S | TRUCTURES IN BOSTO | N HARBOR EXAMINED BY |
| | | NAME CITY/TOWN |
| CTURE USED SE E | | KETCH SHOWING STRUCTURE (NOT TO SCALE) |
| TED STRUCTURES TABLE MATERIAL Report Here in them S Percent Remain. | NON-FLOATABLE MATERIAL | QUANTITIES MATERIALS (Excl. pile materials) WOOD |
| ABLE MATERIAL | NON-FLOATABLE MATTER | OTHER PILES { Recommend pile cut-off at ground pulling pile |
| OR NO VOL C.F | NON-FLOATABLE MATERIAL DIMENSIONS OR NO VOL-CE | Check |

BOSTON HARBOR, MASSACHUSETTS DEBRIS STUDY

- A. Purpose of Chart Showing Date on Derelict Vessels (Wrecked) in the Debris Study Area.
- 1. To show the location; ground elevation; description; vessel's name and registration; present owner's name and address; and a photograph, where possible, of each vessel in the debris study area.
- 2. To determine the amount of materials in, lying on, or within all derelict (wrecked) vessels, broken down in the following categories:
 - (1) Floatable

Wood, includes normal hardware Other type material

(2) Non-Floatable

Steel
Other type material

- B. Instruction Sheet for Filling Out Chart on Derelict (Wrecked) Vessels in the Deoris Study Area.
- 1. Location typical replies: East Boston side of waterway in vicinity of, street (name) or waterfront structure No., or known land mark.
 - 2. Ground Elevation (average) 3 feet mean low water.
 - 3. Description confine replies as follows:
 - a. Type

Scow, tug, barge, lighter, schooner, dredge, tanker, cargo, hulk, and miscellaneous craft.

- b. Composition
 - (1) Wood, includes normal hardware
 - (2) Wood and steel
 - (3) Steel
 - (4) Other (itentify)

c. Overall Size

Average length Height (keel to deck) Beam

- 4. <u>Vessel's Name and Registration</u> record if easily obtainable at site, otherwise omit.
- 5. Present Owner's Name and Address obtain at site, if possible, otherwise omit.

6. Vessel Quantities

- a. Floatable vs. Non-floatable In general, floatable material will be wood and include normal hardware used to hold vessel together Non-floatable material will be machinery, steel members, etc.
- b. Where practical give dimensions in feet of all vessel parts and show on chart percent remaining of each. The breakdown of major vessel parts and their components will be as follows:

(1) Superstructure

- (a) Cabin
- (b) Bridge
- (c) Miscellaneous (identify)

(2) Substructure

- (a) Hull, include bottom and stern
- (b) Decks
- (c) Bulkheads
- (d) Miscellaneous (identify)
- 7. Photograph of Vessel Take one or two photos of each vessel. Take photos during low tidal periods. Obtain camera and film from Coastal Dev. Sect. (113-N). Securely attach (staple) photos to chart. If needed, use this space for any remarks.

- 8. Onboard Vessel Equipment Show on space provided on chart, the kind of material, type, overall size and approximate weight at each major piece of equipment, broken down as follows:
 - a. Engine, number of
 - b. Machinery
 - c. Miscellaneous
 - 9. Material lying on and within, but not part of, vessel's.
 - a. A typical description of materials incountered, including a combination thereof, might be: timber piles, miscellaneous timbers, metal barrels, lobster trap, rubber tires, junk, etc.
 - b. For quantity of materials, give dimension or number of items and convert one or both to a volume in c.f. and list in appropriate space on chart.

DEPARTMENT OF THE ARMY NEW ENGLAND DIVISION, CORPS OF ENGINEERS WALTHAM, MASS

BOSTON HARBOR DEBRIS STUDY DERFLICT "WRECKED" VESSELS IN STUDY AREA

| VESSEL LOCATION SHO | WN ON MAP NO | | | | _ NAN |
|----------------------|----------------------|------|----------|----------------|-------|
| 1. Location: | | | | TOGRAPH OF VES | |
| | | | | | |
| 2. Ground Elevation: | Ft. (mean low water) | | | | |
| | Туре | | | | |
| 3. Description: | Composition | ··· | _ | | |
| | Overall size- | | | | |
| 4. Vessel Name & Re | gistration: | | | | |
| · | | | | | |
| 5- Present Owner's N | lamo & Address: | | | | |
| | | | | | |
| | 6. VESSEL QUANTITIES | | | | 8. VE |
| A. Superstructure | | Vol | ume T | Item | Mati. |
| Cabin | | | | Engine | |
| Bridge | | | | Machinery | |
| Misc. | | | | Misc. | |
| B. Substructure | | | | | |
| Hull | | | | 9 | MATE |
| Decks | | 1-1- | | Description | 月 |
| Bulkheads | | + | | - | |
| DUINIESUS | | | ļ | | |
| Misc. | | | | FLOATABL | E MAI |
| | | | 1 | | |

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DEPARTMENT OF THE ARMY NEW ENGLAND DIVISION CORPS OF ENGINEERS WALTHAM MASS

| EXAMINED BY | |
|---------------|--|
| DATE EXAMINED | |

BOSTON HARBOR DEBRIS STUDY

| DERELICT "W | VESSEL REFER | VESSELS ENCE NO | INSTUDY | NAME | - CITY/TOW | 'N | | |
|-----------------|--------------|--|--------------------|----------|------------------------|--------------------|--------------------|----------------------|
| | | | TOGRAPH OF VES | | | | | |
| | | | r addition ase the | | remarks | - | | |
| | | | | | | | | |
| mean low water) | | 1 | - | | | | | |
| | | -} | | | | | | |
| | | 4 | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | 7 | | | | | | |
| | | | | | | | | |
| | | - | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| QUANTITIES | | | | 8. VESSE | L EQUIPM | ENT QUANT | TITIES | olume |
| | Vol | T me | Item | Mat1. | Туре | Overall Size | Floatable cu It | Non floatable Ton |
| | | | Engine | | | | | |
| | | | Machinery | | | | | |
| | | | Misc | | | | | |
| | | | | | | TOTALS | | 1 |
| | | | 9 | MATERIA | LS LYING | ON OR WIT | HIN VESSE | <u> </u> |
| | | | Description | Dim | ensions or umber | Floatable Gu (i | A OTHER | on-lostable |
| | | | | | | | | - |
| | | | 4 | | | | | |
| | | | | | -SUI | MMARY- | | |
| | | | FLOATABL | E MATER | IALS | | | CU. FT. |
| TOTALS | | | NON FLOA | TABLE M | ATERIALS | | .)′ | TONS |

BOSTON HARBOR, MASS.

DEBRIS STUDY

SHOREFRONT DUMPS

| 1. | Purpose: | - To show | certain | data | on all | shorefront | dumps | which |
|--------|-----------|-------------|-----------|-------|--------|------------|-------|-------|
| form a | source of | floating de | bris in t | he st | udy ar | ea. | • | |

| 2. | Info | rmat | ion Desired: | | |
|----|-----------|------|--|---------|---|
| | a. | Ente | er: Dump No and Ref. Survey Map No | | |
| | b. | Date | e examined and by whom | | |
| | c. | Loca | ation: (1) City/Town | | |
| | | (2) | Name & bank of bordering waterway | | |
| | | (3) | Distance and Direction from nearest street, bridge or point of land. | | |
| | d. | Desc | cription: | | |
| | | (1) | Dimensions - | | |
| | | | Length along waterway | Ft. | |
| | | | Depth (from shore face to inland end) | Ft. | |
| | | | Approx. size | Acres | |
| | | | Elev. (mlw) face along waterway; Bottom Ft., | Top Ft. | * |
| | | | *(+ or - elev. is in reference to mlw) | | |
| | | (2) | Kind of Material | | |
| | | | rubbish wood tires barrels, containers | | |
| | | | municipal trash misc describe | | |
| | | | | | |

| (3) Approx. Volume of dumped material | :• y• |
|---|------------|
| e. Has the face of the dump along river any protective structure (wall, fence, boom, etc.) to prevent all or part of material from being carried into waterway? ** Yes No . If answer is yes, describe structure and its condition. | <u>.</u> |
| f. Extent of dumping operations | - |
| Do dumping operations take place? ** daily week | <u>tly</u> |
| monthly random intervals | |
| g. Does it appear that a significant amount of the dumped mater | ial |
| becomes floating debris? ** Yes No | |
| h. Photographs of Dump | |
| (1) Show dumps shorefront face and, if possible, its location | n |
| in relation to the waterway. | |
| (2) Attach photos to this sheet. | |
| ** Check proper box. | |

PART B

LAND ENHANCEMENT SUMMARY SHEETS

ESTIMATE OF PROPERTY ENHANCEMENT DUE TO REDUCTION IN

FUTURE DEVELOPMENT COSTS

The following displays provide estimates of the property enhancement benefit due to reduction in future development costs. Every source except for some sunken vessels are included in this table. Only those sunken vessels which are perceived to have an effect on future development are included.

Each source is identified by number, type and location. The expected volume to be removed and disposed of is specified, as is the expected cost of this.

The expected future use was determined either from land use plans or known redevelopment plans for the site. Where there are no specific plans for redevelopment, it is assumed that redevelopment will take place within 20 years of debris removal, or in 10 years on average. Where there are plans for redevelopment, a delay period to redevelopment is estimated based on the status of the plan.

A summary of the total amount of benefit to each community by expected future land use type (residential, recreational, industrial and commercial) is presented in Table F-4, Section F of Appendix 1.

* NOTE: Only the first page of Table B-1 has been included in the final report. The complete set of tables and backup information is on file at the New England Division Corps of Engineers.

| | | | <u>.</u> , | | T | | |
|---------------|----------------|----------|------------|----------|------------------|---------------------|-------|
| SOURCE NO | SOURCE TYPE | LOCATION | VOLUME | COST OF | VISUAL IMPACT | EXPECTED FUTURE USE | REMOV |
| | 1176 | | (CU. FT.) | DISPOSAL | INDEX | | REQU |
| 453 | WHARF | HULL | So | 196 | 3 | RESIDENTIAL | YE |
| 456 | н | h | 20 | 41 | 3 | RESIDENTIAL | YE |
| 476 | и | N_ | 100 | 204 | 3 | " / RECREATIONAL | YE |
| 479 | BULKHEAD | н | 100 | 264 | 3 | RESIDENMAL | YE |
| 480 | н | ч | 200 | 408 | 3 | 11 | YE |
| 481 | wh are | ч | 100 | 204 | 3 | I) | YE |
| 484 | BULKHEAD | и | 100 | 204 | 3 | () | YE |
| 492 | ни | n | 800 | 1632 | 0 | RECREATIONAL | YE |
| 495 | WHARF | н | 200 | 837 | 0 | RESIDENTIAL | YE |
| 203 | H | 4 | 500 | 1080 | 0 | RECREATIONAL | Y |
| 5 05 | <u>u</u> | н | 20 | 123 | 1-2 | RECREATIONAL | Y |
| 507 | groin | И | 20 | 41 | 2 | RESIDENTIAL | X |
| 200 | WHARE | Н | 600 | 1412 | 3 | N | ئك |
| 511 | и | ш | 2000 | 5403 | 2 | ıl | 4 |
| 512 | ч | i) | 2400 | 6784 | 3 | RECREATIONAL | Y |
| NEW LOC. | DOCK | M | 200 | 863 | 3 | PESIDENTIAL | Y |
| 458 | CAMEL | н | 3100 | 18011 | 3 | RESIDENTIAL | Y |
| 461 | WH ARE | l) | 16100 | 8905 | 1 | RECREATIONAL | Y |
| 469 | ų | 34 | 260 | 1030 | 3 | RESIDENTIAL | Y |
| 475 | BULKN & WHARF | И | 2040 | 11722 | 3 | Ŋ | Y |
| 506 | WHARF | И | 1600 | 8240 | 1-2 | RECREATIONAL | 7 |
| PEDG 1SC#M | 11 | h | 200 | 1162 | 1 | 1) | Y |
| | VESSEL HULL | V | /00 | 581 | 1 | 11 | Y |
| 453 | LOOSE DEBRIS | 4 | 3500 | 10010 | 3 | RESIDENTIAL | Y |
| 3421 | u u | āļ . | 300 | 858 | 3 | RESIDE UTIAL | 4 |

| XX | EXPECTED FUTURE USE | DEBRIS REMOVAL REQUIRED | ESTIMATED TIME TO REDEVEL- OPMENT (YEARS) | PRESENT WORTH FACTOR | BENEFIT | REMARKS |
|-----|---------------------|-------------------------------|---|----------------------------|---------|---------|
| | PESIDENTIAL | YES | 10 | .503 | 98 | |
| | RESIDENTIAL | YES | 10 | 1. hi 3 | 21 | |
| | " / RECREATIONAL | YES | 10 | 100 | 102 | |
| | RESIDENTIAL | YES | (0 | .50 A | 102 | |
| | 11 | YES | 10 | ろこみ | 305 | |
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| | | YES | 10 | 203 | 102 | |
| | RECREATIONAL | YES | 10 | 50人 | 819 | |
| | RESIDENTIAL | YES | 10 | 300 | 430 | |
| | RECREATIONAL | YEA | 16 | , 50 3 | 712 | |
| 2 | RECREATIONAL | YES | 10 | | 62 | |
| | RESIDENTIAL | Xix | 10 | 1003 | 21 | |
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| _ | 11 | YES | 10 | 0.3 | 2712 | |
| | RECREATIONAL | YES | 10 | 4.07 | 3406 | |
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| _ | CESIDENTAL | YES | 10 | 563 | 9042 | |
| _ _ | RECREATILAL | YES | 5 | .714 | 13/12 | |
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| - | ECCEPTIONAL | YES | 10 | 507 | 4/136 | |
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| _ | V 1 | YES | 0 | うでき | 391 | |
| | RESIDENT, AL | YES | 10 | 503 | 5015 | |
| | PCS 15 WHAL | YFS | 10 | 503 | 4.1 | |

J.

APPENDIX 4

Rev. May 1980

BOSTON HARBOR, MASSACHUSETTS FEASIBILITY REPORT FOR DEBRIS REMOVAL

Cultural Resource Reconnaissance



DEPARTMENT OF THE ARMY NEW ENGLAND DIVISION, CORPS OF ENGINEERS WALTHAM, MASS.

> DECEMBER 1979 (REVISED MAY 1980)

APPENDIX

This cultural resource reconnaissance survey was prepared for the New England Division, Corps of Engineers, by Valerie Talmage, Archaeological Researcher, and Geoffrey P. Moran, Principal Investigator, at the Public Archaeology Laboratory, Department of Anthropology, Brown University, Providence, Rhode Island, under Contract No. DACW 33-77-C-0061.

ABSTRACT

The United States Army Corps of Engineers is undertaking a feasibility study for Federal participation in the removal and disposal of floatable debris sources in Boston Harbor in connection with which this cultural resource reconnaissance survey has been conducted. The purpose has been to locate and identify cultural resources when possible, distinguish between areas that are sensitive to the proposed project and areas that are non-sensitive, and make recommendations for an intensive survey of cultural resources in the proposed project area. An extensive search of secondary source literature and historic maps. together with a brief field reconnaissance has been accomplished. Significant historic activities within the twelve shorefront communities are discussed. The economic and topographic development of Boston Harbor, and the relationship between significant shorefront activities are investigated. A total of eleven potentially sensitive areas and an additional thirty potentially sensitive structures are noted, and recommended for intensive study.

ACKNOWLEDGMENTS

The Public Archaeology Lab at Brown University, and the primary researcher, Valerie Talmage, would like to thank the following individuals for their assistance during this investigation: John Wilson, Staff Archaeologist for the Massachusetts Division of Water Pollution Control; Dr. Barbara Luedtke, Archaeologist, University of Massachusetts at Boston; and Captain A. Swanson, Historian, Metropolitan District Commission.

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INTRODUCTION

This report is a Cultural Resource Reconnaissance for the Boston Harbor Debris Study under feasibility consideration by the New England Division, United States Army Corps of Engineers, 424 Trapelo Road, Waltham, Massachusetts. The study was conducted by the Public Archaeology Laboratory, Brown University under the direction of Geoffrey P. Moran, Projects Manager. Valerie Talmage was the primary archaeological researcher for the study.

This report is intended to fulfill requirements of both State and Federal legislation pertaining to the identification and evaluation of cultural resources. Relevant legislation includes:

Federa1

- The National Historic Preservation Act of 1966 (PL 89-665, 16USC 470-1966)
- The National Environmental Policy Act of 1969 (PL 91-190, 42 USC 4321-1969)
- 3. Executive Order 11593 (16 USC 470-1971)
- Procedures for the Protection of Historic and Cultural Properties (36 CFR VII 800-1972)
- 5. Archaeological Conservation Act (PL 93-291-1974)

State

- Massachusetts Environmental Policy Act (Chapter 781, Acts of 1972)
- Chapter 1155, Acts of 1973

Specifically, this report complies with the proposed rules issued by the Department of the Interior, National Park Service (36 CFR Part 66) for reconnaissance survey. These rules state that:

> Reconnaissance survey is designed to provide a general impression of an area's historic properties and their values, and involves small-scale field work relative to the overall size of the area being studied. Although reconnaissance survey will seldom if ever provide sufficient data to insure identification of all historic properties in the area, it should make it possible to

identify obvious or well-known properties, to check the existence and condition of properties tentatively identified or predicted from background research, to identify areas where historic properties are obviously lacking, and to indicate where certain kinds of properties are likely to occur, thus making possible a more informed and efficient intensive survey at a later stage in planning.

In addition, this report accomplishes the goals outlined for Phase I Reconnaissance Survey in "Archaeology and Public Planning" (Mc-Manamon 1976) of the Massachusetts Historical Commission. Phase I investigation of impact calls for: (1) a background study of regional history and prehistory, (2) a literature search to identify known sites, (3) a sites records check at state and local archives, (4) a walkover and/or sub-surface investigation of the area and (5) a calculation of the archaeological sensitivity of the impact area taking into consideration past and present land use, ecological contexts, and the nature of the proposed disturbance to the land.

II. PROJECT DESCRIPTION

The New England Division, U.S. Army Corps of Engineers ("the Corps") is conducting a study to determine the feasibility for a one-time clean up program of Boston Harbor to rid the area of its sources of flotable debris. The Corps considers such debris potentially hazardous to navigation, a suppressant to land values and aesthetically unpleasant.

An inventory and visual inspection of potential debris sources including photographic records, has been conducted for engineering analysis. The inventory located, identified, classified and quantified debris sources within Boston Harbor. The original survey was conducted in 1968; updates were conducted through 1976.

The study area (see fig. 1) includes twelve shorefront communities: Winthrop, Revere, Chelsea, Everett, Somerville, Cambridge, Boston, Quincy, Braintree, Weymouth, Hingham and Hull. The tidewater area of approximately 47 square miles (c. 122 km²) will be included, lying landward from a line drawn between Point Allerton, Hull to the tip of Deer Island, Boston. The study area also includes the water tributaries into the Harbor of the Wier River, Weymouth Back River, Weymouth Fore River to lower dam, Town River, Neponset River to lower dam, Reserved Channel, Fort Point Channel, Charles River to lower dam, and Chelsea River. Also, the shorefront tidal area of each of the Boston Harbor islands is included.

Potential sources of debris were classified by the Corps into 7 categories: (1) dilapidated waterfront structure, not in use, (2) dilapidated waterfront structure, in use, (3) partially dilapidated structure, (4) structure in fair to good condition, (5) derelict vessels, (6) loose on-shore debris, (7) shore-

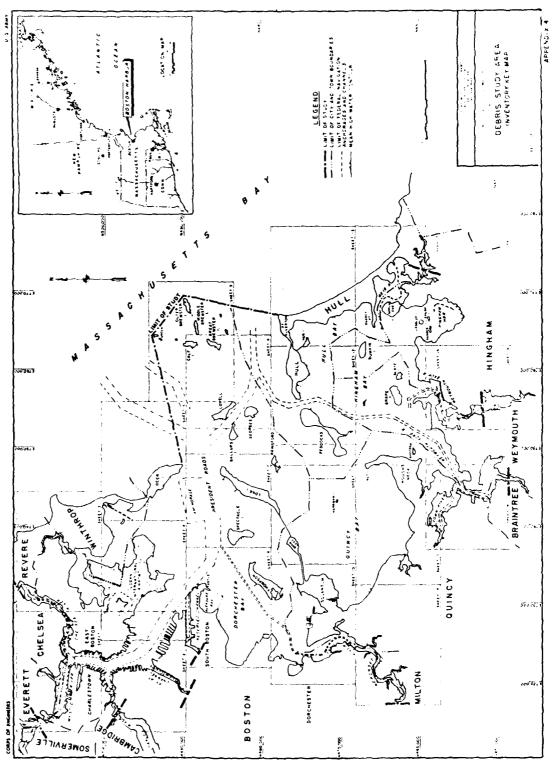


Figure 1 Project Area of Cultural Resource Reconnaissance Survey

Appendix 5

structures in tair to good condition are not addressed in this reconnaissance, as these structures are not within the Corps' projected clean-up. Derelict vessels are not addressed in this reconnaissance, but will be addressed under a separate contract, by another agency. This reconnaissance survey considers only the dilapidated structures (in use and not in use), partially dilapidated structures, sources of loose on-shore debris and shorefront dumps.

According to the 1976 update there are:

- 173 dilapidated structures, not in use
- 21 dilapidated structures, in use
- 80 partially dilapidated structures
- sources of loose on-shore debris
- 5 shorefront dumps
- 441 total potential debris sources

The Corps has offered no explicit definition of their classificatory scheme; however, discussion with the debris project head engineer (personal communication, May 27, 1977) suggested that the classifications were largely subjective. Waterfront structures which are dilapidated are structures which, from an engineering status, are so unsound as to make repair unfeasible, impractical or impossible, or uneconomical. Partially dilapidated structures are structures which need repair, and which are solid enough to warrant such repair. The distinction between loose-on-shore debris and shorefront dumps is not explicit, but is probably a subjective analysis of both size and concentration of debris.

If the feasibility study suggests the project should go forward, the following impact on structures would result: dilapidated structures would be removed, partially dilapidated structures would be repaired, loose on-shore debris would be picked up, and shorefront dumps would be removed. Structures in fair to good condition will not be impacted.

III. METHODOLOGY

A. Analytical Framework:

The goal of this reconnaissance survey is to identify <u>sensitive</u> areas within the limits of the Boston Harbor Debris project that are <u>likely</u> to contain potentially significant historic properties, and to eliminate those <u>non-sensitive</u> areas in the harbor in which significant historic properties are <u>unlikely</u> to occur. In subsequent phases of investigation (e.g., intensive survey or mitigation) the sensitive areas will be intensively examined and specific sources of potential debris will be evaluated for their historic significance. Areas eliminated by this reconnaissance will, in general, <u>not</u> be considered in subsequent phases.

The potential historic significance of a location in the project area will be evaluated by examining the importance of the location's role in the history of the port of Boston. The basic assumption underlying the analytical framework of this reconnaissance is that activities relating to the port of Boston will be localized within the harbor. Thus, the distribution of historic properties within the harbor will not be random, but will be patterned according to ascertainable variables. These variables will be both environmental and cultural. Thus, for example, the location of shipbuilding for deep water vessels will have been located in those sections of Boston Harbor that are deep enough to allow for the draught of such vessels. Another example of localization is wharves which handled the import and export of goods; these structures will have been located in areas of the harbor which were serviced by transportation routes (e.g. railroad terminals).

One problem that is obvious at this general level of survey but which can only be accurately determined at an intensive level of investigation, is the degree to which locations of certain significant historic activities have become obscured or altered, in whole or part, by subsequent land use at the same location. Over time more than one activity may have been carried on in the same location in the harbor, and the later accompanying structures may have destroyed or modified original structures. Furthermore, much of the history of Boston Harbor involves large land filling developments which totally covered the original shoreline and filled whole sections of Boston Harbor. Thus many historic waterfront structures are under filled land, and patterns of structures relating to early waterfront activities are consequently disrupted. The patterns observed in this study are necessarily some remnant of the original configuration of the material patterns of waterfront activities.

The methodology followed here will argue from significant activities relating to the port of Boston to potentially significant locations in the harbor. Thus, the primary line of inquiry will be to understand and detail various activities which were conducted in the harbor. Once

these activities are understood, the relationships between the activities and their localization within the harbor will be addressed.

Most of the significant activities in Boston Harbor relate in some way to the economic function of Boston as a port. As a port, Boston Harbor functioned as a gate through which traffic passed. According to Clapp (1916:4) "A port is not the origin or destination of the bulk of traffic carried by its water lines. It is a concentration point or gateway, in severe competition with other gateways, for the business of a common hinterland". Thus the economic conditions of not only Boston, but New England, the Eastern Seaboard, the United States and foreign countries will carry implications for past activities in Boston Harbor, and consequently implications for structural manifestations in the harbor.

The following matrix (figure 2) delineates some of the activities that have had significance in the history of the port of Boston. The activities listed seem to capture the salient classes of activities in the harbor, but are probably not exhaustive. Furthermore, although this matrix is a useful diagram to expose historically significant Boston Harbor activities, the rigid structure of the matrix presentation obscures the complex interrelationships of the activities. The dynamics of these activities in the port of Boston comprised a densely interconnected and integrated system. This matrix suffices to point out some of the important components of this sytem, but does not attempt to analyze the relationships involved in the functioning of the port.

Some of the components of the matrix are more densely interrelated than are others. For example, the category of recreation seems largely tangential to the functioning of the economic activities of the harbor, yet is important for understanding late nineteenth century public use of the harbor. The categories of trade and transportation, on the other hand, are intricately tied.

The matrix should provide a useful quide for suggesting locations of activities. A specific square in the matrix should be localized to a specific area (s) in the harbor. For example, the square ${\it of}$ "Coastal Trade" in which the freighting and shipping of uomestic supplies from Eastern Seaboard ports is contained, can be narrowed to specific harbor locations: since much of the trade consisted in shipping coal and lumber to Boston, which would later be redistributed to inland manufacturing cities, most of the structures associated with coastal trade are located near railroad terminals in the harbor.

This analytical framework forms the backdrop from which to argue from significant activities to potentially significant locations within the harbor. However, since economic conditions changed over time, the locations of such activities probably also changed over time. Moreover, the topographic profile of the relation of water to land in Boston Harbor has itself changed as land

| SPHERES OF EXTENSION | LOCAL | COASTAL | DEEPWATEP |
|----------------------|--|----------------------------------|---|
| Activities | | | |
| Maintenance | pilots, turs harbor comm- ittee, hospitals | Navy, USLSS, Coast Guard | quarantine, immigration, customs, defense |
| Shipbuilding | small boats, repair | coastal ships steam & sail | deepwater ships steam & sail |
| Fishing | fresh/ice industry oystering, lobstering | exchange | trade (dried cod) |
| Trade | market products redistribution | freight, domestic shipping | trade w/Europe, So.Amer.,China, West Indies, Northwest Coast |
| Transportation | ferries PR facilities, bridges | coastal lines | foreign lines |
| Marine Businesses | sail making lumberyards rope walks chandleries ice cutting | timber, coal | government contract, import/export |
| Recreation | yachting, racing, bathing, excursions | racing | |

Fig. 2 Activity Matrix

was reclaimed from the sea to support growing developmental pressaces. Slearly, explication of the significant harbor activities is dependent on understanding both the economic and topographic mistory of Boston Harbor. Thus, while the matrix presents the underlying structure for assessing potentially significant areas, details of the economic and topographic history will be necessary for accurate discernment of locations of historic activities.

B. Method of Data Retrieval:

The basic emphasis in a reconnaissance level survey is on literature research rather than fieldwork. Field-work comprised a minor component and consisted of a "windshield and walk-over" inspection of the project area, islands excepted.

Three main sources of information were consulted. The first is the survey/photo record sheets and maps supplied by the Corps. Information on these record sheets included location and description of present structures, estimation of the present condition of each structure, a sketch plan, polaroid photos, present use, owners name, and, in some cases, the past use of the structure. Information for specific structures is sometimes lacking if owners were unknown, etc. Record sheets were supplied for all structures, dilapidated or not. Brief records on dumps were also available. Sources of loose on-shore debris were not catalogued. In addition to the photo record sheets, the Corps supplied a series of maps of the project area. During the course of the study, several clerical and typographical errors were encountered in the survey sheets, and a description of these errors are appended to this report. (See Appendix I).

The second source of data is secondary literature sources on Boston and Boston Harbor. Most helpful of these (for the rest, see bibliography) were Bunting (1971), Baker (1969), Cellineri (1976), Whitehill (1968) and Koren (1923). These sources supplied data necessary for understanding the economic and political history of Boston and the harbor.

The third source of data used in this survey is historic maps, dating from 1630 through the early twentieth century. The series of maps (see Fig. 3 to Fig. 21) shows the topographic development of the harbor clearly and provides the information to locate various structures mentioned throughout the literature sources.

The three sources of background data control separate provinces of information for the reconnaissance study: the Corps record sheets provide information on the present status of the harbor, the secondary literature sources provide information from which to gain an understanding of the economic relationships active during the history of the

port of Boston, and the historic maps provide the information to examine the topographic development of the harbor. In addition, consultation with individuals recently concerned with historical studies in Boston Harbor was supplemental to these three sources. The synthesis of this information will yield a cohesive background against which to evaluate the potential historic significance of localities within Boston Harbor and their associated structures.

Fieldwork was designed to assess the validity of some of the areas projected as sensitive from this synthesis. Fieldwork was limited in nature, and designed to confirm suspicions on the nature of the resources, rather than investigate any cultural properties in detail.

C. Prehistoric Resources:

By the nature of the proposed project, the major potential impact to cultural properties would be to historic rather than prehistoric sites. Since no prehistoric site would itself constitute a source of floatable debris, potential impact to a prehistoric site would be limited to inadvertent land disturbance during the process of removing debris sources. Consequently, debris sources noted by the Corps which are near a known prehistoric site will be noted.

The primary focus of this study is prehistoric period cultural resources. Known prehistoric sites near the impact area will be noted, but prehistoric research was a minor component of the study due to the limited potential impact to such sites involved with the proposed project.

IV. Boston Harbor History

A. Introduction:

This section of the report is designed to explain the interrelations between the economic and physical elements outlined by the matrix in Figure 2. Preceding the two developmental chapters is a chronology listing major topographic changes and economic trends, and including a list major storms and fires which impacted waterfront structures. Supplemental to this chronology and essential for understanding the development of Boston Harbor is the series of historic maps, dating from 1722 to 1910. The four parts of this section, the chronology, the historic maps, the economic development and the topographic development, read in combination, provide the best way to understand the historical significance of locations in Boston Harbor.

CHRONOLOGICAL OUTLINE OF BOSTON HARBOR ECONOMIC AND TOPOGRAPHIC DEVELOPMENT

| i . | Developm | ent (1624 - 1783) (see Fig. 3-4) |
|-----|----------|---|
| | 1624 | Samuel Maverick settled in Chelsea. |
| | 1625 | Rev. William Blaxton settled near Beacon Hill. |
| | 1630 | J. Winthrop <u>et al</u> arrived, settled first at Charlestown and moved to <u>Boston</u> in the same year. |
| | 1631 | Ferry from Charlestown to Boston. First vessels in colony built at Medford. |
| | 1634 | Community loading place on north side of Town Dock (Bendall's Cove). Castle Island fortified. |
| | 1635 | Ferry from Boston to Charlestown and Winnisimett (Chelsea). |
| | 1637 | Ferry from Boston to Noddles Island (East Boston). |
| | 1641 | Bendall's Cove granted to consortium for construction of wharves. First country road from Chelsea to Salem. |
| | 1642-49 | English Civil War stimulated Colony's commerce (since England couldn't maintain control of shipping). |
| | 1643 | North cove facing Charlestown granted to consortium for construction of wharves and corn mill. |
| | 1646 | North Battery established at Merry's Point in North End. |
| | 1653 | Major fire with considerable damage in dock area. |
| | 1660 | Navigation Act. |
| | 1666 | South Battery established on Rowe's Wharf. |
| | 1673 | Navigation Act. |
| | 1679 | Fire damaged 70 waterfront warehouses. |
| | 1681 | Sea Wall/Barricado/Out Wharves built in Great Cove. Beacon established on Great Brewster Island. |
| | 1690 | Boston population c. 7,000. |
| | 1709-10 | Grain and Provision shortage with Queen Anne's War |

(1702-1713).

- 1711 Major fire. Grain riots.
- 1713 Grain riots. Long Wharf opens.
- 1717 Quarantine station established on Spectacle Island.
- 1733 Molasses Act.
- 1737 Quarantine station moved to Rainsford Island.
- 1738-49 Economic depression.
- 1742 Boston shipbuilding moved to Newburyport.
- Boston population c. 16,380.
- 1775 Fire, 35 waterfront warehouses destroyed.
- 1775-83 American Revolution.
- II. Prominence (1783-1857) (see fig. 5-11)
 - 1783 Depression; British ports closed to American ships.
 - 1786 Charlestown Bridge built.
 - 1788 Depression broken.
 - 1789 Dike and dam at Island End River, Chelsea.
 - 1790 Boston population 18,320.
 - 1792 Town of Quincy set off from Braintree.
 - 1797 Federal Government established shipyard on 43 acre mudflat, Charlestown.
 - 1801 Filling India Wharf area.
 - 1803 Middlesex Canal opened. Chelsea Bridge and Salem Turnpike opened.
 - Dorchester Neck (South Boston) annexed.
 Front Street Corporation filled to create Harrison
 Avenue, encroached on South Cove.
 - South Boston bridge opened.
 Tudor ice trade began.
 India Wharf constructed.

Appendix 5

12

| 1807-09 | Jefferson's embargo. |
|---------|--|
| 1812 | War with Great Britain. |
| 1814 | New England meeting at Hartford to consider secession. |
| 1817 | Ferry from Fosters Wharf to Nahant. American Navigation Acts of 1817 reserved coastal trade to domestic vessels. |
| 1819 | Financial panic. Central Wharf opened. Signal set up at Deer Island. Lighthouse set up on Long Island. |
| 1820 | Boston population 93,000. |
| 1822 | Boston incorporated as City. Boston & Liverpool Packet Co. began operation. |
| 1824-52 | 1% Massachusetts tax on auction. |
| 1825 | Old Town Dock filled to Long Wharf (112 acres). |
| 1827 | Boston & Liverpool Packet Co. |
| 1827-33 | Dry Dock No. 1 built at Charlestown Navy Yard. |
| 1828 | Reciprocity Act: elimination of discrimatory duties and tonnage dues on foreign cargoes. |
| 1831 | Steam ferries operating in harbor. |
| 1832 | Tudor shipping ice to Calcutta. |
| 1833 | Widening of Neck and addition 77 acres to city for Boston & Worcester railroad facilities. |
| 1834 | Bridge from Chelsea to Chelsea Street, East Boston. Fort Warren on Georges Island. Began construction. |
| 1835 | Boston & Providence Railroad and Boston & Lowell, and Boston and Worcester Railroad opened service. |
| 1839 | Samuel Hall established shipyard in East Boston. Bridge from Pullen Point to Saratoga Street, East Boston |

Boston terminus for British & American Royal Mail Steam Packet (+ Cunard Co.). Boston population, 93,400.

1840

CORPS OF ENGINEERS WALTHAM MA NEW ENGLAND DIV F/G 13/2 BOSTON HARBOR, MASSACHUSETTS FEASIBILITY REPORT FOR DEBRIS REMO--ETC(U) MAY 80 AD-A092 397 NĻ UNCLASSIFIED 2 + 4 400339*

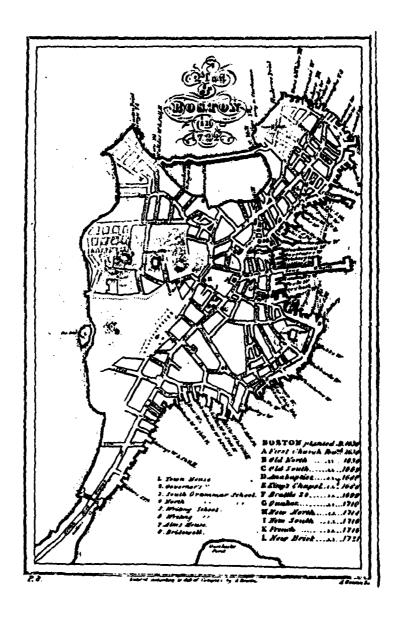
| 1841 | Indirect linkage by several railways with Albany. |
|--------------------|--|
| 1843 | Boston population, 100,000. |
| 1845 | Beginning clippership construction. First open yacht race. |
| 1847 | Eight railroads bringing in 20,000 commuters to Boston daily. Deer Island quarantine station established. |
| 1848 | Cunard line switched to N.Y. |
| 1849 | Rainsford Island poorhouse established. |
| 1850 | Boston population 136,400. East Boston population 5,000. |
| 1852 | City Harbor Committee established; East Boston Ferry Co. established. |
| 1852 | Deer Island poorhouse established. |
| 1853 | Waterfront police established. People's Ferry established. |
| 1854 | Simpson's drydock built in East Boston. |
| 1855 | Bridge from Chelsea to Meridian St., East Boston. |
| 1857 | Depression, panic lowers prices 25-50%. |
| III. <u>Declin</u> | e (1857-1940) (see fig. 12-19) |
| 1858-59 | City subsidy to East Boston and People's ferries. |
| 1861-65 | Civil War |
| 1865 | Boston Yacht Club established. |
| 1866 | "L" Street seaside bath opened, South Boston. |
| 1867 | Narrows Channel first dredged. Fort Strong moved from Noddles to Long Island. |
| 1868 | South Boston & Lynn Yacht Clubs established. Boston, Hartford, & Erie terminal on South Boston flat. |
| 1869 | Atlantic Avenue built. Grand Junction terminal built. |
| 1870 | Dorchester annexed. City bought East Boston Ferry Co. Decade begins deep water steam. |
| Appendix 5 14 | |
| | |

| 1872 | Great Fire destroyed 65 acres in wholesale district. Boston Tow Boat Co. incorporated. |
|-------------|--|
| 1874 | Charlestown annexed. U.S. Life Saving Saving Service given Federal support. |
| 1875 | Hoosac Tunnel opened. Boston population 342,000. East Boston population 28,000. |
| 1878 | Sewer to Moon Head Island constructed. |
| 1882 | T wharf built. |
| 1883 | Fore RiverShip & Engine Building Co. established in East Braintree. South Boston - large railroad terminal with 1000' pier, 850' extension, warehouses, grain elevator. |
| 1885 | Poorhouse transferred to Long Island. Juvenile reformatory established on Rainsford Island. |
| 1890's | Marine Park, South Boston built. |
| 1891 | Castle Island connected to mainland with bridge. |
| 1892 | Narrow channel dredged. Garbage rendering plant established on Spectacle Island. |
| 1893 | Fore River received major Naval Contract. |
| 1896 | Deer Island, Suffolk County Prison established. |
| 1897 | USS Constitution returned to Boston. Fort Andrew built on Peddocks Island. |
| 1898 | "Portland Gale", November 26. |
| 1900 | Major filling of South Boston flats using 1872 fire rubble for fill. |
| 1901 | Fore River Shipyard removed to Quincy deep water site. |
| 1902 | North Channel and inner harbor dredged. |
| 1904 | Boston Tunnel opened. |
| 1905-6 | Renovation of Harbor and wharves. Broad Sound Channel dredged. Opening of major new dry dock in Navy Yard. |

| 1911-13 | 1200' Commonwealth Pier n. 5 Duilt. |
|---------|--|
| 1914-18 | World War I. |
| 1914 | Cape Cod Canal opened. Fish Pier built. |
| 1915 | Revenue Service merged with U. S. Life Saving Service to form Coast Guard. |
| 1925 | North Channel dredged to 40'. |
| 1934 | Sumner Tunnel opened. |
| 1937 | 40' deep anchorage in President Roads. |
| 1940 | 40' channel (President Roads) to Commonwealth Pier n. 1. |

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HISTORIC MAPS



Appendix 5

Fig.3

A. Bowen Plan of Boston

M.H.S. 1722

Rehroduction of

Burgiss:

Map of Boston

1728

Tig. 4
Reproduction of Burgiss Map

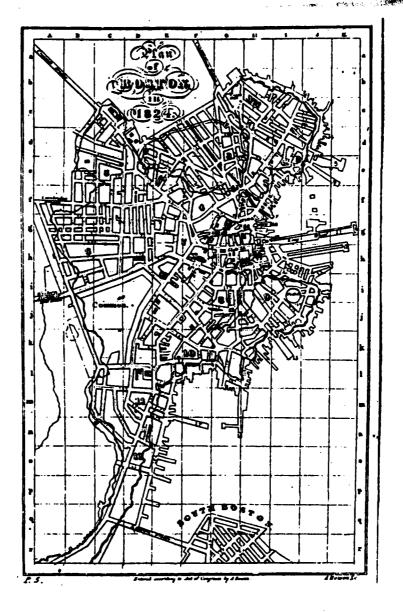
(Boston's Growth)

Appendix 5 19



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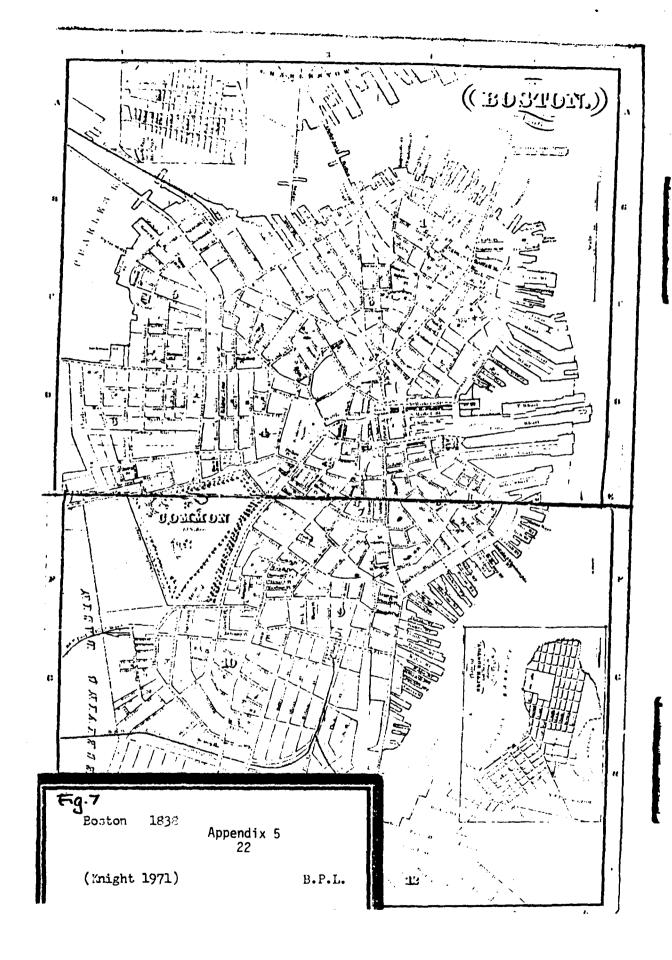




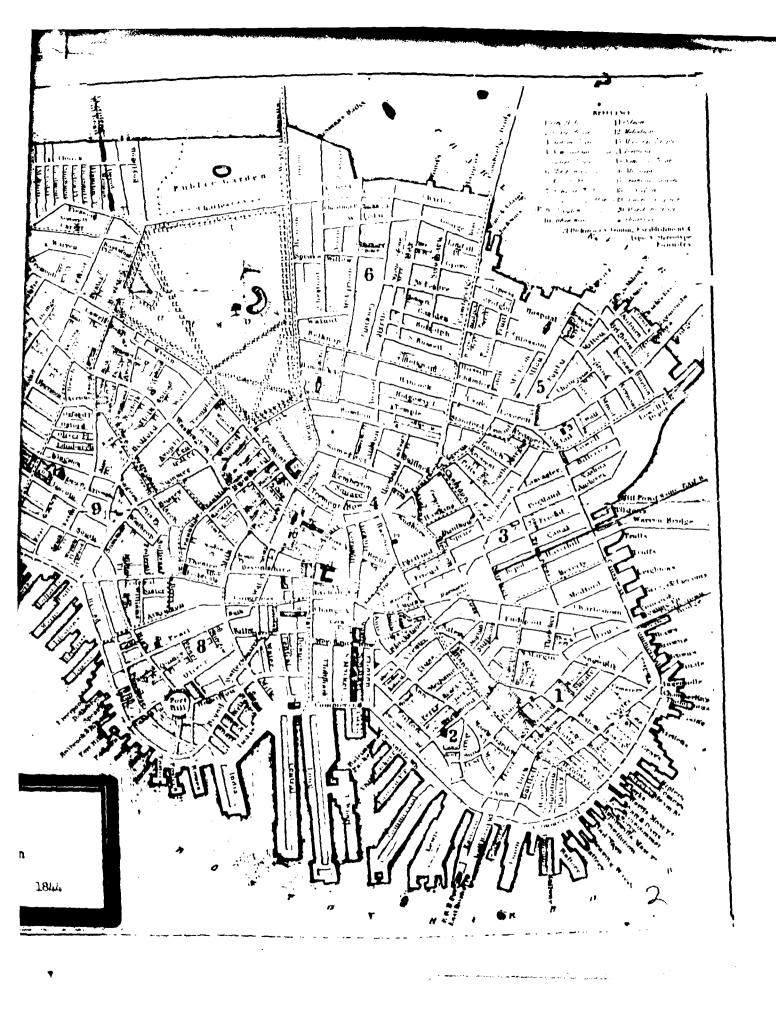
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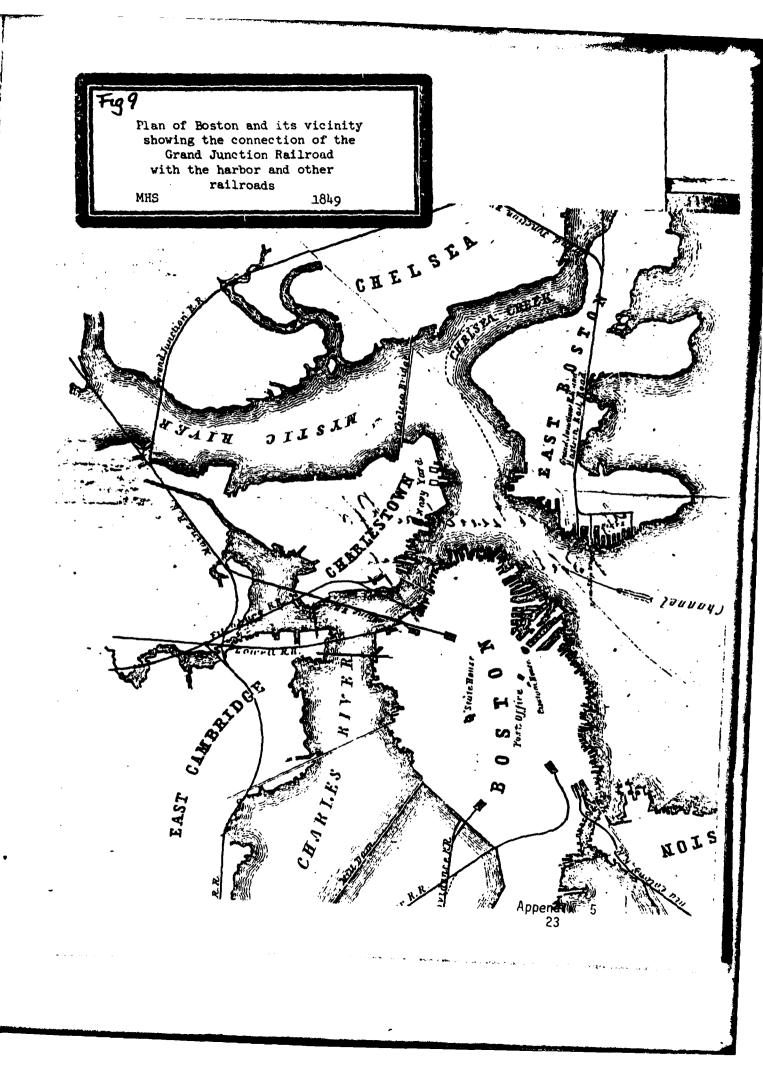
Fig. 6

A. Bowen
Plan of Boston
M.H.S. 1824

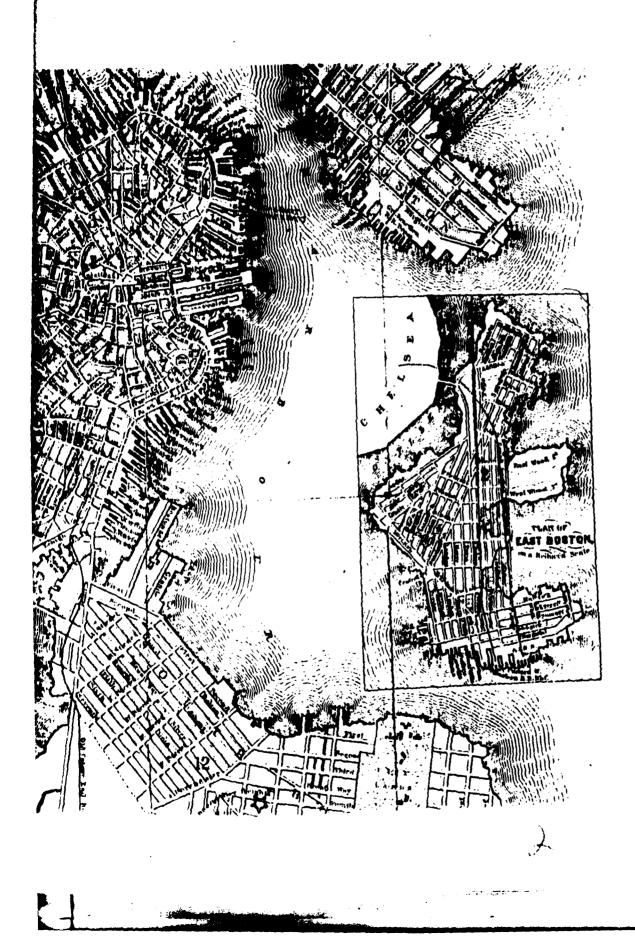


F19.8 ..,N. Dickin≎on Plan of the City of Boston 1844 M.H.S.











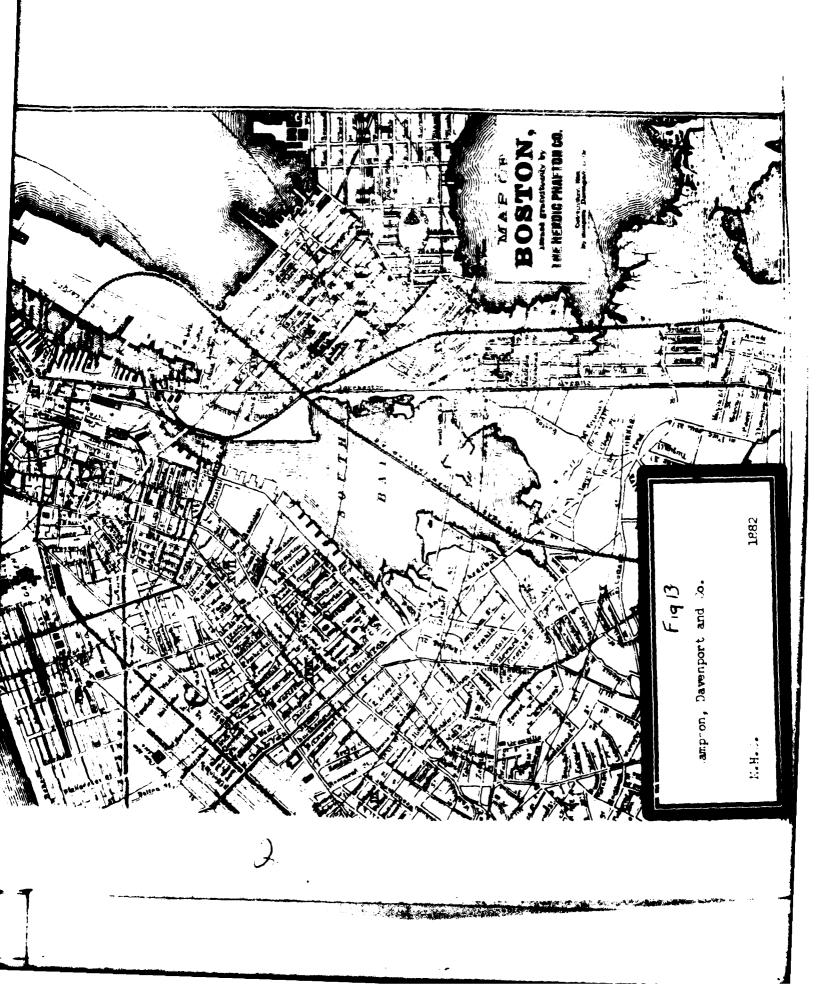
Appendix 5 25

Plustedraphically reduced from the City Engineer Plans With all the latest improvements B A COMPLETE GUIDE TO STRANGERS, Giving the itintuious from City Hall, in 's Mile Circles. Showing distinctly the Hotels, Public Buildings, Strim & Horse Ratt Roads, Nard Doundaries & Fire & Dichrete Retried for the New Goods through Bodon & Scimits. 0 Fig 12. L. Prang Map of Bosten 1866 M.H.S.

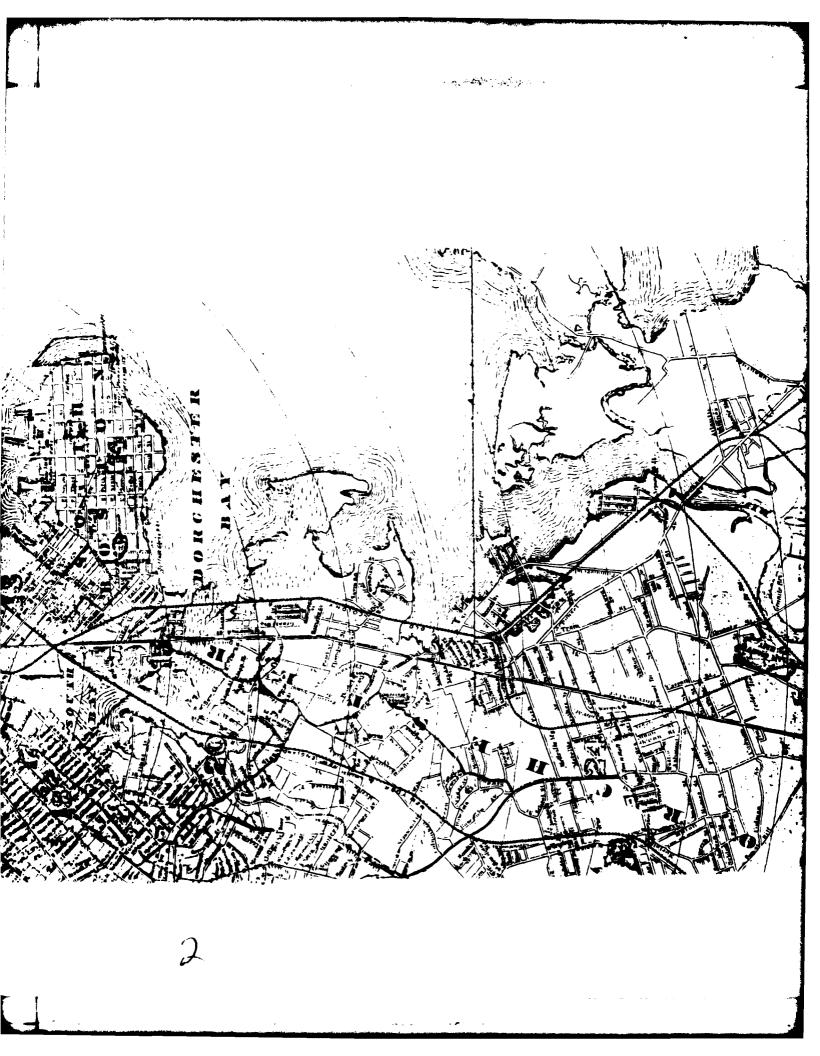


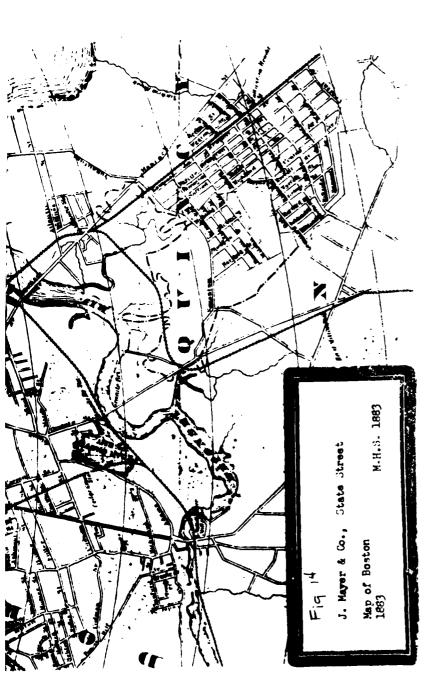
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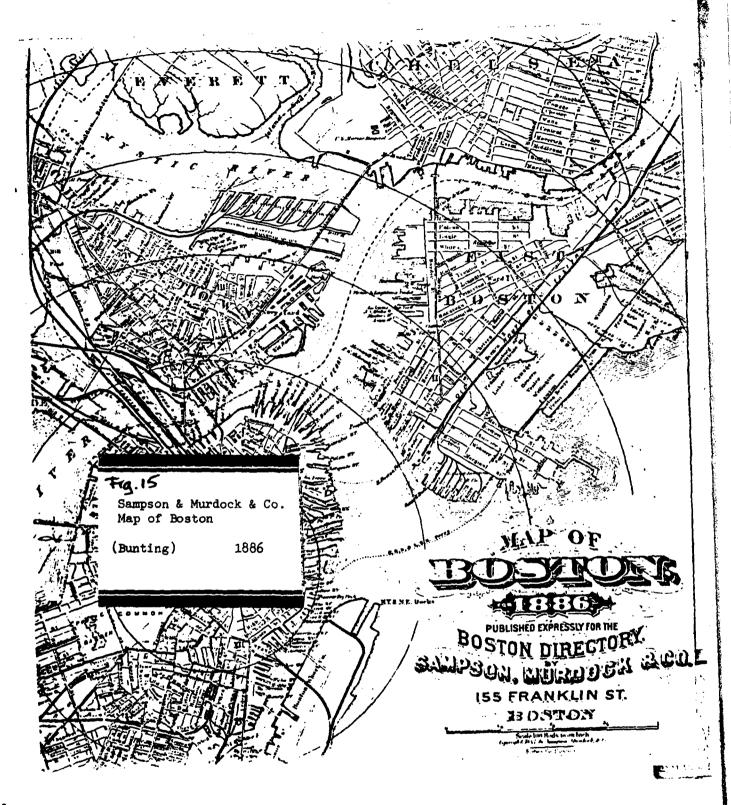




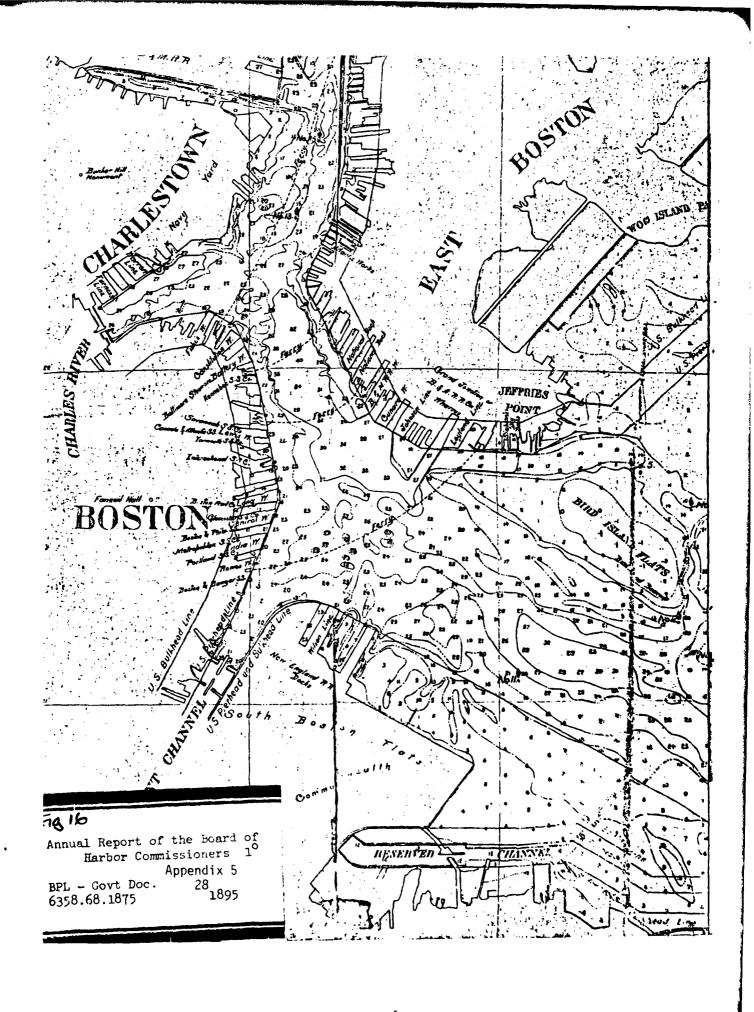


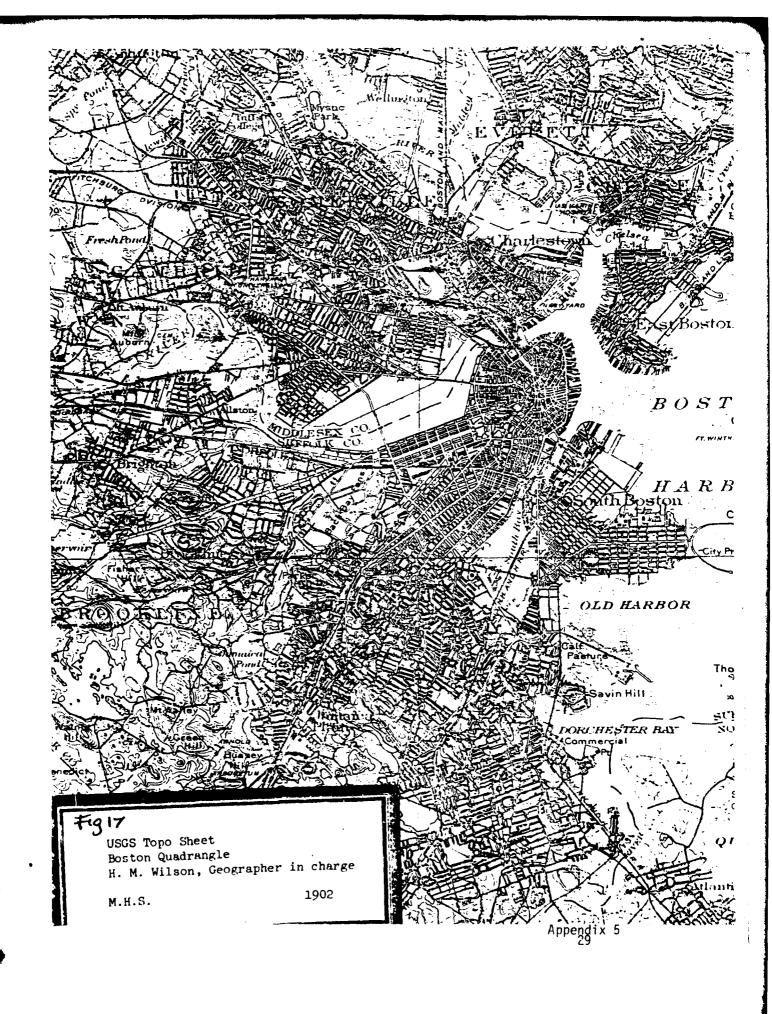


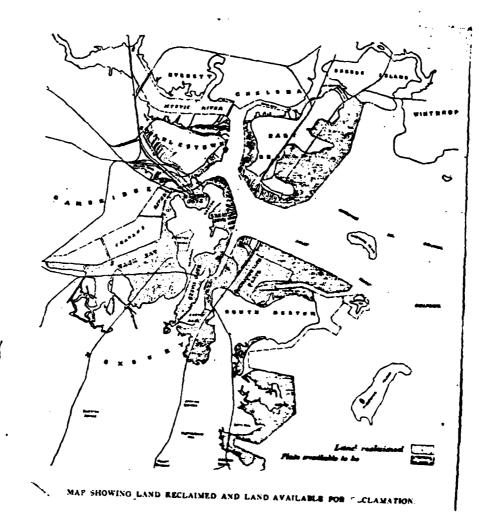




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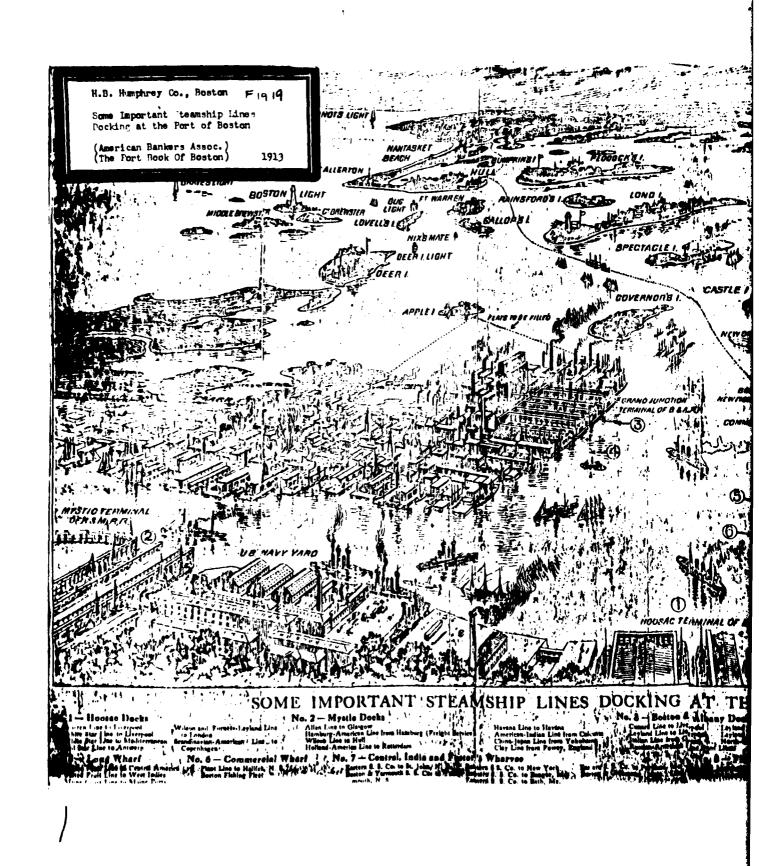


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Map showing land reclaimed and land available for reclamation

(Boston's Growth)

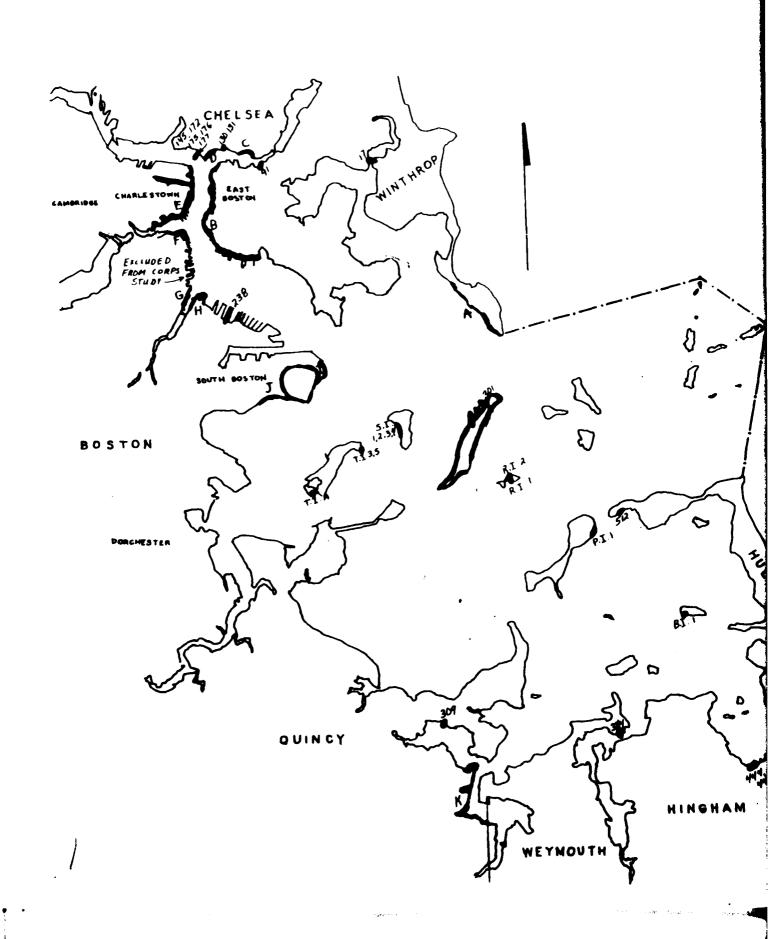
1910





20 Figure 49 Overlay Map of Boston: 1775, 1910, prasent. CAMBRIDGE





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C. General Economic Development and Relations

1. Location of Port of Boston

The topography of Boston harbor, taken in isolation, is well suited to shipping with its naturally deep channels and the protection afforded by island waterbreaks. Although the natural advantage which Boston enjoys is a necessary pre-condition for economic success, it is in no way sufficient for such success. A port represents the intersection between a terrestrial economic hinterland and maritime trade; the well-being of the port requires dynamic interchange between these two areas.

The New England hinterland of Boston harbor is largely deficient in agricultural bulk staples or other natural resource export materials, leaving industry as the primary source of exports. Moreover, industrial exports, such as the paper, textiles, leather, instruments, machinery, rubber and plastics produced today (Cellineri 1976:47) require importation of raw materials and fuel, while yielding export goods of low bulk and high value. This situation does not attract concentrations of shipping since full holds are demanded to justify the trip. In addition, New England industrial products are largely consumed by the domestic market, further removing incentive for foreign trade. This dilemma has forced Boston into the role of a regional port during much of its history, supplying New England with essential imports but not enjoying the benefits of booming exports. New England is, in effect, poorly integrated with the rest of the continental United States by virtue of its geographical configuration; Boston serves as an entrepot to this region, while New York draws from Boston and dominates commercial shipping for the rest of the northeastern United States.

Boston's effective hinterland has not always been so restricted: Boston was once a port more prominent than New York. The processes by which Boston was reduced from a port of national prominence to one of simply regional importance are at once geographical, demographical and political -- Cellerini (1976:46) lists "geographical disadvantages; increased competition; shifting centers of population, consumption and production; and a discriminatory cost structure" -- operating through the past one hundred fifty years. The changing activities that have been located in the harbor over this span of time bear witness to these processes, making the present status of the port of Boston an extremely unreliable indication of its former glory.

2. Trade & Economic Trends

The first European settler in Boston was the Reverend William Blaxton, who settled near Beacon Hill in 1625. His solitude was broken five years later with the arrival of Winthrop and his followers. Shipping was an important Boston Harbor activity from the beginning; Bendall's Cove served as the center of commerce from 1634 when the Town Dock was established in what is now the Fanueil Hall Square area. Prior to the English Civil War, the growth of the colonial maritime commerce was closely regulated by British law and control over shipping. However, during the seven year period of the civil war (1642-1649) strictures against colonial commerce were loosened, and trade, largely independent of direct British control, developed. This trade was centered on the West Indies sugar production which supported a New England rum industry.

In 1660 Britain passed a Navigation Act which was designed to suppress the autonomy of colonial trade by permitting importation only through British-owned ships manned by British crews, and prohibiting exportation except to Britain. However, this Act was not usually enforced by British governors of the Massachusetts Colony, and it did not adversely affect the Boston economics to any great extent. Similarly, the Molasses Act of 1733 failed to reduce colonial shipping between New England and the West Indies in favor of British shipping, as a standard ten percent of the profits of this trade was used to bribe customs officials. On the other hand, the Navigation Act of 1673 taxing colonial coastwise trade did a disservice to the Boston economy by limiting the lucrative trade with the Virginia colony.

As can be inferred from the food shortages in the Boston area that resulted from Queen Anne's War (1702-1713), Boston was dependent upon maritime commerce for its existence even in the beginning of the 18th centruy. Shortages were so severe as to provoke grain riots in 1711 and again in 1713.

The increasingly effective British measures aimed at siphoning off profits made by colonial maritime commerce exacerbated the prolonged economic depression Boston experienced through the middle of the 18th century. The Massachusetts Revolutionary rebels were not only motivated by a desire for parliamentary representation, but also by a desire for commercial freedom unimpeded by British regulations.

During the colonial period, improvements of harbor facilities came primarily from private citizens rather than from public sources. Although no record of the first wharf built in the harbor exists, by 1645 eighteen wharves had been constructed in addition to the Town Dock in Bendall's Cove. In 1641 the Cove was granted to a group of merchants for construction of wharves: a similar grant to the North Cove opposite Charlestown was made in 1643. Building continued steadily through the 17th and 18th centuries. By 1708 Boston and Charlestown contained a

Appendix 5

total of 78 wharves, despite one fire in 1653 which caused considerable damage in the dock area, and another in 1679 which destroyed some seventy waterfront warehouses. During the pre-Revolutionary 18th century, harbor front development is associated with the opening (1713) and subsequent enlargement (1719 and 1763) of Long Wharf, though building occurred in other parts of the harbor as well. Long Wharf, extending well into deeper harbor waters, became the major focus for Boston's shipping (see Fig. 3 & 4).

The Revolutionary War virtually ended commercial activity of the port, as the British first occupied, and then blockaded the harbor. Economic activity had been directed towards the conflict, leaving fishing and merchant fleets unprepared, and shipbuilding unequipped for the end of hostilities. This unpreparedness was prevalent along the entire eastern seaboard, contributing to the economic depression that seized the former colonies in the years following the war. The American fleet's inability to resume normal activities was compounded by British action closing much of the West Indies to American ships. France and Spain also closed their Indies ports for a short time; British possessions in the West Indies were not legally opened to American merchants until 1830 (although illicit trading had resumed prior to that date).

The economic depression was ended in 1788 by which time trading activities had resumed. Commerce was also stimulated by customs regulations advantageous to American shipping that were set up by the new Federal Government in 1789. Because the re-establishment of former trade patterns had been denied by British actions, new trading relations were developed. In the New England area, Salem led this development, and it was not until 1802 that Boston passed Salem as the major center for foreign trade. Political conditions in Europe (i.e. the confrontation between Britain and France during the last part of the 18th and early 19th centuries) kept Britain preoccupied and enabled American merchants to establish trade with Baltic, Russian and Mediterranean ports. The Russian trade in particular was extremely profitable with the closing of European ports to neutral shipping.

These trading connections were unstable, however, especially because of the British blockade of the continent and the activity of British and French privateers. Jefferson responded to this threat to American shipping by imposing a total embargo on foreign trade from 1807 to 1809. This action virtually closed the port of Boston, and was devastating to the New England economy.

The War of 1812 followed closely, a war which also closed down Boston shipping. The Embargo and War were so unpopular in New England that representatives of the six states met in Hartford, Connecticut in 1814 to consider secession from the union. The war ended before these contemplations could be translated into action, and the port of Boston was once again free to engage in foreign trade.

Concomitant with the opening of trade with European ports following the Revolution was the emergence of the extremely lucrative trade with China, India and the Spice Islands. As with the trade with Europe, Salem was the early leader in this trade, but Boston soon passed Salem, particularly in the Cantonese trade. However, the New England economy did not produce goods sought by the Chinese; this difficulty was circumvented by exchanging such products as cloth, shoes, iron nails with the Northwest Coast Indians for luxury goods (notably black sea otter pelts), which in turn were traded in Canton for tea, silk, and china ware. Since such trade did not require large capital outlay and could be conducted on an individualistic basis, large private fortunes were accumulated by entrepreneurial ship captains.

Jefferson's embargo of 1807 extended to the Cantonese shipping, to its detriment, and the War of 1812 virtually eliminated the trade. After the War, New York captured much of the Cantonese trade, forcing Boston to seek alternative trading connections. Furthermore, European commercial shipping challenged the monopoly of the American merchant fleet in global trade after the establishment of peace on the continent.

During the years that followed the War of 1812, Boston's trading activities gradually renewed. Many of the former patterns continued, though in reduced importance; Boston was the principal American port for re-export of goods from the Baltic, the Mediterranean, and India during the 1820's and the 1830's. However, during this period, New York passed Boston as the major Eastern Seaboard port, though much of the tonnage putting in at New York was Boston owned, and therefore, much of the profits stayed in Bostonian fortunes.

The failing Cantonese trade profits were bolstered by trade in ice to points south and east from Boston. Frederick Tudor had begun experimenting with shipping ice in 1805. By 1840 he was exporting ice to Argentina, India, the Near East and other areas, and had fifteen competitors in the Boston area alone. By the second half of the 19th century, this trade had passed from Boston hands into those of Maine, Canada and Norway.

The forty years following the war with the British witnessed a great expansion of American shipping in response to a greatly increased demand for deep water trade. However, Boston's position vis-a-vis other American ports declined, although she remained one of the great shipowning centers of the world. Moreover, during this time, Massachusetts was industrializing rapidly, and by 1840 was predominantly a manufacturing state. The port of Boston permitted the importation of raw material which was a pre-requisite for establishing new industries. Most of this traffic was brought in by coastwise shipping, while deepwater tonnage putting in at Boston was decreasing.

The increase in coastwise shipping was in part due to the re-ordering of the eastern seaboard economy brought about by industrialization and more efficient inland transportation. Another factor contributing to the increase of coastwise shipping at the expense of deepwater commerce was legislation concerned with maritime commerce, both at the federal and local levels. In 1819, as a result of a financial panic, heavy tariffs were imposed on cotton from India, on woolen goods from Great Britain, and on other materials competitive with growing American industries. These discriminatory tariffs were eliminated in 1828, but by that time Massachusetts had moved to exact a one percent tax on all auction profits, which was in force from 1824-1852, a move which provided incentive for deepwater ships to put in at New York and other ports.

During the 1840's and 1850's Boston had a superficial air of prosperity prior to the depression of 1857, with a fairly high absolute tonnage bringing goods from California (chiefly hides), Argentina, and the American South. However, the situation was unstable since internal transportation connections (e.g. railroads) were increasingly focused on New York, and bulk exports from Boston were decreasing. By the 1850's exports amounted to less than half of the imports annually, since most of the manufactured goods that were potentially exportable were consumed domestically. As Cellineri (1976:8) observes, "port activity gradually became oriented around the functional priorities of supplying food for the region's (i.e. New England's) growing population, and fuel and raw materials for its growing industries." Most of Boston's export trade was merely transshipment.

The famous clipper ship era, which lasted only the twelve years between 1845 and 1857, actually had little economic impact on the port of Boston outside shipbuilding as an economic activity. However, this short-lived activity represents an important era of the cultural heritage of Maritime Boston. Clipper ships were built as a response to the demand for rapid passage at high rates, spurred on by the California gold rush. Due to their design, cargo capacity was not large; moreover, most of these ships

operated out of New York rather than Boston. However, Boston was the center of clipper production and the shipyards in East Boston and surrounding communities were among the busiest in the world.

The depression of 1857, followed by the economic disruptions of the Civil War, severely reduced Bostonian shipping. The war years witnessed massive selling of American tonnage to foreign concerns, resulting in a sudden decrease in the percentage of foreign commerce owned by American firms. This percentage dropped steadily through the rest of the 19th century, from 65% in 1865, to 13% in 1890 (Baker 1969:220). In Boston itself, the 1860's marked a sharp decline in prosperity due in part to the slowness of the port's adoption of steam. Even before the Civil War, Boston's owned steam tonnage was only a tenth of New York owned tonnage.

Boston rebounded in the 1880's, with prosperity continuing to the turn of the century. This boom coincided with the rise of the great New England textile centers; Boston during these two decades was second only to London as the world wool importer. However, much of the manufactured woolen goods were absorbed by the domestic market, leaving Boston without an industrial export staple. In this case, the deficiency was obviated by efficient railroad systems which brought western grain produce and livestock to Boston for export, permitting exports to outstrip imports during this period of prosperity.

In 1882 preferential railroad rates were granted to Philadelphia and Baltimore, while New York and Boston were rated equivalently. These rates were not strictly enforced until 1903, at which time, since terrestrial transportation is more costly per unit weight than marine, shipping from Boston declined in favor of the preferred ports (Cellerini 1976:22). In 1916 the North Atlantic Conference on steamship lines moved to equalize ocean rates to all North American ports, thus removing the pretense of geographical closeness to European ports (Cellerini: 1976:23). Consequently, grain exports dropped radically, from 270,000 tons in 1910, to 140,000 tons in 1929, to 8,000 tons in 1938 (Cellerini 1976:25). The ratio of imports to exports similarly dropped; from the end of the 19th century when exports outweighed imports, the ratio worsened from 4:1 in 1920 to 10:1 in 1929 (Cellerini 1976:18). economic effects of the World War I temporarily offset this trend, but the world economic recovery of the mid-twenties soon removed this gain as European ports re-entered and competed with Boston. Even wool imports had declined by the late twenties, and the Great Depression completed the decline.

3. Transportation

The economic vitality of the port of Boston has been integrally linked with efficient transportation systems since the Revolution. The first of these was the canal network that was built in the early 19th century. From the perspective of Boston, the most important of these were the Middlesex Canal and the Erie Canal, the former in a positive and the latter in a negative way. The Middlesex Canal, running from Chelmsford and the Merrimack River to Charlestown, was completed in 1803 and remained in operation for half a century until 1851. This waterway permitted transportation of bulk cargo at moderately low rates, thus aiding materially the growth of Massachusetts industrialization. Against this, the Erie Canal connected New York, via the Hudson River and the Great Lakes, with the agricultural midwest, thereby attracting shipping away from the less advantaged ports, including Boston. The disadvantaged position of Boston was exacerbated with the coming of railroads. Bostonians realized the importance of railroads and invested in them heavily, but unfortunately did not make a concerted effort to bring about a well-integrated network of tracks. In particular, a single line did not penetrate the Berkshire Mountains, separating New England from the rest of the country until 1867, some thirty years after rail service to Boston had opened.

The first railroads operating to Boston, the Boston and Providence, the Boston and Lowell, and the Boston and Worcester Railroads, opened within a few days of each other in 1835. These lines were privately financed and, since mutually competitive, unarticulated. So successful were they that by 1847 eight independent lines (Western Railroad and Boston and Worcester Railroad) to Albany were possible after 1841, though because of rate increases involved in changing lines and the absence of connection with Boston Harbor, this connection did not divert much of the Erie Canal traffic to Boston. An attempt was made to place a terminal on the waterfront, but the ensuing silting prevented ocean going vessels from using it.

Figure 9 indicates that as of 1849, the only major railroad line servicing the harbor was the Grand Junction Railroad, located in East Boston. Other lines, the Old Colony Railroad for example, put in near the harbor, but did not link up with harbor facilities. In 1855 the New York Central (later the New York & New England Railroad) had put a line into the harbor area of southern Boston.

By the 1880's an important complex of harbor railroad facilities had been constructed by the Boston & Lowell Railroad, and service the Mystic River Corporation on the Mystic River in Charlestown (see Fig. 13). Boston & Maine Railroad had also opened terminals in Charlestown. By the turn of the century, the

facilities in Charlestown and East Boston had been expanded, and the New York, New Haven & Hartford Railroad, having taken over the New York & New England, and the Old Colony railroads built large terminals on the harbor in South Boston (see Fig. 17).

4. Coastwise Trade

Thus far, coastwise trade has been mentioned only in passing, with discussion concentrated on deepwater shipping. The economic prosperity of Boston seems to have been more directly related with the health of deepwater traffic operating out of the port than with any other mode of maritime transportation: the trends displayed by coastwise as opposed to deep water shipping differ considerably. In contrast with deepwater ventures, which showed great fluctuations in vitality, coastwise traffic increased in volume steadily throughout the 19th and into the 20th century. This continual advance was reversed only in the years 1813-1814, 1829-1830, and 1876-1878 (Baker 1969:222). Amazingly, while in 1929 Boston was ranked only eighteenth nationally in deepwater tonnage, Boston was first in coastwise tonnage.

The primary impetus to expanding coastwise shipping came from two factors: the need for the Boston metropolitan area to maintain itself, and the demand for raw materials for the growing New England industries. Boston was heated first by wood, and later by coal during the 19th century; these fuel sources were brought by coastwise shipping. Similarly, much of the petroleum and natural gas needed for heating during this century is transported by ships. Grain was brought in from Baltimore in the first half of the 19th century, as were other food stuffs from more southerly ports (Bunting 1971:7). Also from southern ports came raw cotton important for the New England textile industries. In return, Boston shipped manufactured products to other American ports, and until the severe decline of foreign commerce, the exotic imports brought to Boston by deep water shipping. Between 1832 and 1849, the imports of the southern cotton increased ten-fold, while from 1830 to 1850 arrivals of anthracite from Philadelphia alone increased twentyfold. Over the same two decades, total coastwise arrivals virtually doubled, indicative of the pace of New England industrialization and of the growing dependence of the port of Boston on coastwise activity. By the 1920's, coastwise traffic constituted over twothirds of the port's business, with coal receipts accounting for well over half of this traffic (Cellineri 1976:8-9).

5. Shipbuilding

Boston harbor has an extremely rich tradition in shipbuilding. The first vessel built in the Massachusetts Bay Colony was constructed in Medford in 1631; Medford, a town outside the project area, remained a major shipbuilding center through much of the harbor's history.

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Prior to the Revolution, Great Britain depended heavily upon American shipbuilding; in the middle of the 18th century, one in every four ships of British register was American built. Boston did not contribute much tonnage to this activity, but rather constructed vessels for local ownership and local trading ventures. As a result of the mid-century depression, Boston's shipbuilding was dislocated in favor of Newburyport, and did not fully recover until after the Revolution.

Boston shipbuilding boomed after the economic recovery following the Revolution. The Middlesex Canal allowed efficient transportation of the lumber from the interior to the harbor. However, shipbuilding continued to be centered in Medford until the 19th century, specializing in speedy vessels for the China trade.

The Mystic River was found to be too shoal to permit deep draught vessels egress, and by 1850 the major shipyards in the harbor were located in East Boston (see Fig. 10) where a sophisticated shipbuilding complex was established. The first prominent shipyards were established in 1839 by Samuel Hall. By 1855, ten yards building full-rigged vessels were located in East Boston (see Fig. 11) (including holdings by Hall, McKay, Curtis, Booles and others); nine others were doing similar work in Medford, Chelsea, South Boston, Charlestown, and Quincy (Bunting 1971:71). The following year, three additional yards opened in East Boston (Baker 1969: 185).

The economic effects of the Civil War completely disrupted shipbuilding and Boston's industry never recovered after the war. Competitive yards in Maine undercut Boston's construction costs, and the global demands for shippage were depressed. By 1880 the primary function of Boston yards was the repair of Maine built vessels, construction being restricted largely to locally operated ships such as ferries. One exception to this condition was the Fore River Ship and Engine Building Company, which was founded in 1883 in East Braintree, and moved to Quincy in 1901. The Fore River Shipyard was fortunate in securing Naval contracts, which assured its longevity. Shipbuilding in the rest of the harbor remained bleak. The high demand for tonnage occasioned by World War I afforded only temporary relief to the lack of activity in the harbor.

6. Ferries and Steam Lines

Transportation of people in the harbor has existed on three levels: (1) between communities within the harbor, (2) along the New England coast, and (3) to farther domestic and foreign ports. The importance and extension of these services through the past three centuries has been directly related to the efficiency of terrestrial transportation networks, and to the economic importance

of the port. With good railroads and later highways, ferries within the harbor and out to Gloucester, Maine and other ports virtually disappeared. With the economic decline of Boston, the port was first reduced to a port of call for foreign lines, and then eliminated from transatlantic passenger service.

Three separate ferry services were set up within ten years of European occupation of the harbor: Boston to Charlestown (1631), Boston to Charlestown and Winnissimmet (Chelsea) (1634) and Boston to Noddles Island (East Boston) (1637). These services continued and were expanded into the 19th century. The construction of tunnels below the harbor (e.g. 1904 Boston tunnel), removed much of the need for ferries (Koren 1923:173), though service to, for example, Hingham and Hull continued well into the present century, and has, in fact, recently been revived.

Passenger service to ports in the regional coast flourished in the 19th century, spurred on by the difficulties of putting in railroads to Maine and the Maritime provinces. Between 1840 and 1860 separate lines ran from Boston to Portland, Bangor and the Kennebec (Bunting 1971:286), with other lines running to. Gloucester and Cape Cod. These lines were consolidated into monopolies following the Civil War, until by 1901 all the Maine lines were operated by the Eastern Steamship Company; the Canadian firm, the Canada Atlantic Steamship Company serviced the Maritime Provinces during the second half of the 19th century.

Links with ports to the south were similarly established in the 19th century; by 1850 New York, Philadelphia, Baltimore, Charlestown, and New Orleans were connected with Boston by regular lines. However, these runs did not long survive the Civil War for the most part.

Passenger service all along the Eastern seaboard had virtually disappeared by the 1920's, a result of competition from railroads and highways.

Oceanic service to Boston shows a similar pattern of growth. Following the abortive Boston and Liverpool Packet Company (which ran from 1822 to 1827 and folded because of the lack of a staple export) the British & American Royal Mail Steam Packet Company (later the Cunard Company) selected Boston as a principal terminal port in 1840. The lack of bulk cargo again faced Boston, and in 1848 Cunard switched to New York as its principal American port, with Boston as a port of call. Efforts were made to rectify the lack of service (e.g. the American Steamship Company, which operated out of Boston between 1865 and 1869), but Cunard suspended all service in 1868, leaving Boston virtually without service. When the Boston & Albany

Railroad constructed expansive harbor facilities at the Grand Junction Terminal in East Boston ensuring good connections between the harbor and its hinterland, Cunard resumed its service (1871), which continued until 1967, though with steadily decreasing importance.

7. Fishing

Boston has traditionally served not as much as a home-port for fishing fleets (though at times, the fishing fleet has been considerable), as much as a central market for the distribution and import of the catches from the fleets of other New England communities. One of Boston's principal exports during the colonial period was salted cod; the city's own consumption through the first half of the 19th century concentrated on mackerel. During most of the 19th century and into the 20th, Gloucester was the leading fishing port of North America. Railroad links with Boston were established in 1846, permitting the rapid growth of the fresh fish industry, increasingly centered on Boston. Boston's own fleet expanded in the early part of this century, surpassing Gloucester's in the 1920's, as evidenced by the opening of the Boston Fish Pier in 1914. Boston's fishing has now declined in favor of more northerly ports.

8. Maintenance

The maintenance activity category is a kind of catch-all for a variety of institutions and organizations which contributed to the daily functioning of the harbor. Most of these institutions are still operating in some capacity, since they are crucial for safe and efficient port dynamics.

On the local level, a variety of City and privately run organizations contributed to harbor maintenance. In 1852 the City Harbor Committee was established to oversee land modifying projects in the harbor. The Committee was particularly concerned with the deterioration of harbor islands due to ballast digging. However, the Committee never established real authority and the State Legislature continued to govern, albeit ineffectually, land modifications in Boston Harbor.

The Boston Tow Boat Company was incorporated in 1872 and based at T Wharf; the company still operates now out of East Boston. Other important 19th century Tow Boat concerns were: Rogers and Sears, Central Wharf, N. P. Doane, Ross Tow Boat and Suffolk Tow Boat. By 1900 sixty tugs were owned and operated in the port.

One of the most colorful maintenance related jobs were pilots licensed to guide vessels not registered in Boston to dock. In addition to being licensed for Boston, there were special pilots for Hull, the Charles River and the Neponset River, East Braintree, Weymouth and Quincy. The Boston pilot's berth was (and is) at Lewis Wharf.

On the coastal and deepwater spheres of extension, maintenance activities were related to federally operated organizations. The presence of the Federal Government was first felt at Charlestown with the Navy Yard and continued throughout the 20th century by establishing forts on numerous islands in the harbor. The Coast Guard, established in 1915 by combining with the U.S. Life Saving Service and the Revenue Service maintains safety and regulatory services in the harbor.

9. Recreation

Although recreation related activities are not intricately tied to the economic function of Boston Harbor as a port, they do constitute an important part in cultural heritage of harbor use. Before the Civil War yachting and resorting were activities carried on by very few people. The first summer resort in which cottages were built was in Nahant in the 1820's. The first open yacht race in the country was held in Boston in 1895.

After the Civil War, recreation activities expanded and were carried on by a broader segment of the population. The first yacht club in Massachusetts Bay was the Boston Yacht Club, established in 1865. The South Boston and Lynn clubs followed in 1868, the Eastern Yacht Club was established in Marblehead in 1870 by a splinter group from the Boston Yacht Club. Within the next fifteen years yacht clubs were established at Hull, Quincy, Dorchester, Charlestown, Chelsea, East Boston and Winthrop, making Massachusetts Bay the greatest yachting center in the world. (Bunting 1976:452).

The first public bathing facility in the country was established at the foot of "L" Street in 1866. Amusement parks were set up near beaches in the late 19th century at Revere Beach and Nantasket Beach (Paragon Park). The Revere facility came under State management in 1893.

Excursion lines around Boston harbor were popular recreational activities in the mid-19th century. The Nantasket excursion steamer, which left Rowe's Wharf in Boston to landings at Hull and then Nantasket, was one of the most popular and best run small steamboat lines (Bunting 1976:68). The ferry line from Foster's Wharf, Boston serviced the summer resorts at Nahant from 1817. The harbor islands have been targets of pleasure seeking boaters since the 19th century.

Topographic Development by locality

From the beginning of settlement of Boston in the mid-17th century, developers have been involved in reclaiming land from the salt marshes and mud flats surrounding Boston. The topographic changes to Boston Harbor have a complicated history which can only be summarized in this study (see Fig. 20). Included in this section are brief descriptions of activities localized in certain areas of the harbor. The chapter is arranged on a town by town basis, starting with Winthrop and winding southward to Hull; the islands are briefly examined at the end.

1. Communities

Winthrop

Winthrop was originally part of Chelsea; it was set off from North Chelsea in 1852 (Clark 1952). Winthrop was basically a resort beach town with very little industry. A copper works (the Revere Copper Company) was established on Point Shirley 1844-1869. A narrow gauge railway was built in the late 19th century from Winthrop to East Boston, establishing Winthrop as a resort/commuting center to Boston. The railway was in operation until 1939 (Clark 1952:150).

Revere

Only a small area of Revere, on the waterfront section at the head of Chelsea Creek is included in this study. Only seven structures are pinpointed, three of which are dilapidated.

Revere was established as a resort beach town, centered on Crescent Beach (originally "Chelsea Beach" now "Revere Beach") (not in study area) (Pratt 1930). The resort originally catered to a "discriminating" class of people, but when the State took over the beach in 1893, it was in "deplorable condition".

Revere had minimal impact upon the functioning of Boston as a port.

Chelsea

The Winnisimmet ferry from Boston to Chelsea via Charlestown was established in 1634. For over one hundred and fifty years the ferry was the most direct route to Boston; travel to Boston by land meant traveling a circuitous route through Malden, Medford, Cambridge, Brighton and Roxbury (Pratt 1930). The ferry landed originally on what are now the grounds of the Naval Hospital, later changed to the foot of Winnisimmet Street. In 1749 four boats were authorized to cover the ferry route. Steamboat service began in 1831, and by mid century a ferry operated every fifteen

minutes. In 1851 an omnibus service from the ferry wharf to any part of Chelsea was established. The service operated until the early twentieth century, when competition of tunnels, bridges and electrical cars forced the end of ferry service. (Pratt 1930).

The first direct land route north from Boston to Essex County was not established until 1803 when the Salem Turnpike was built. The Chelsea bridge from Charlestown to Chelsea over the Mystic was finished in 1802. The toll rate was 72¢ for non-residents and 46¢ for residents. The bridge was made free in 1869 (Bunting 1971).

Previous to the Civil War, Chelsea was a prestigious Boston summer resort. However, with the improved ferry service and immigration influx after the Civil War, Chelsea changed into a congested city. The 1848 population was around 5,000; by 1857 population had risen to 12,000. Salt marshes were turned into working class housing. Pratt (1930:97) remarks that "grasping and unscrupulous avarice found a pretty village and turned it into a city slum."

Chelsea was the mother town of Revere and Winthrop. North Chelsea, later Revere, was set off in 1846; Winthrop was set off from Revere in 1852.

The U. S. Navy set up a hospital on the Chelsea waterfront in 1826. The original structure was closer to the water than the one that now stands.

The mid-19th century shipbuilding boom spilled over Chelsea creek from East Boston. Important shipbuilders included Pierce & McMichaels and Montgomery & Howard's (Bunting 1971: 82-84).

Everett

A short section of the waterfront of Everett, along the Mystic River, is included in the project area. Information on the topographic or economic development of Everett in the port of Boston is mostly negative. No information pertaining to important port activities located on the Everett waterfront has been uncovered. The river frontage is shown as undeveloped marsh on maps as late as 1902 (see fig. 17). Since that time, the area has been filled, and the structures necessarily post date this filling.

Somerville

Only a small section of Somerville on the Mystic River is included within the project area. Only two structures, one of which is dilapidated, fall in this area. This section of the Mystic River was straightened by filling operations in Somerville and Everett some time after 1910 (Fig. 18). Therefore, two structures necessarily post date 1910. Secondary sources have not mentioned Somerville in relation to important harbor activities.

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Cambridge

A small section of Cambridge along the Charles River is within the limits of the study. Two structures are within this area. Cambridge has not been mentioned in secondary sources as being important in port activities. The area is filled from the shoreline appearing on the 1902 and 1910 maps (Fig. 17 & 18).

East Boston

The present location of East Boston covers what was originally two islands. Noddles, which makes up the major part of the present waterfront area and Breeds (or Hog) Island which is the northern part further up the Chelsea River (Fig. 5). Present day Logan Airport is built on land from Noddles and Governors Islands, and the mud flats and small islands between them. Forty five dilapidated or partially dilapidated structures are on the East Boston waterfront.

A ferry ran between Noddles Island and Boston as early as 1637. However, until the mid-nineteenth century, East Boston remained relatively undeveloped. The 1806 maps (Fig. 5) shows only two small areas of development. However, by 1850 the population in East Boston was 5,000; by the 1870's East Boston was really bustling with an 1875 population of 27,420. In 1905 the population was 50,000 (Bunting 1971). The initial 19th century growth was due to planned development and was advanced by the shipbuilding boom of the 40's and 50's. After the Civil War, East Boston's growth was largely due to immigration (Bunting 1971:52).

By the late 1830's to 1890's the construction of the Grand Junction Railroad terminal was started, a large facility with a number of piers and a million bushel grain elevator for the Boston and Albany, and Eastern Railroads. The facility was completed in 1869. The Cunard Steamship Line (or the "British and American Royal Mail Steam Packet") took advantage of this terminal, and began a regular route from Liverpool in 1840 (Clapp 1916). The Cunard Line was the first of many transoceanic lines to dock at East Boston, as East Boston (along with Charlestown and South Boston) was the location where most deep-water vessels berthed. Other important steamship lines were the Leyland line from Genoa, the Russian-American line and the North-German Floyd Line (see Fig. 19).

In 1839, Samuel Hall, a shipwright from the North River in Marshfield, established a yard in East Boston. Within a decade a number of others followed Hall's example and established East Boston as the most productive and progressive shipbuilding center of the world (Bunting 1971). The East Boston boom was advanced by the call for fast and large clipper ships for the California gold rush. East Boston was the center of the clipper ship building in Boston harbor.

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Donald McKay was probably the most successful of the East Boston shipwrights, having built 46 square riggers between 1845-1856 (Bunting 1971). Other important shippards in East Boston belonged to John Brooks, William Mckie, Curtis, Jones and R. E. Jackson. McKay's shippard was taken over by the George McQuestion Lumber Company at the end of the 19th century (Bunting 1971:52).

The clipper ship building was a short-lived boom which ended abruptly with the depression of 1857. However, East Boston recovered economically and a number of other operations were set up or continued in the area. For example: J.E. Simpson built the first timber drydock in the country in 1854 near the Boston and Albany Grand Junction property.

The East Boston Ferry Co. was established in 1852, and was taken under city management in 1870. The ferry operated from the ferry wharf near the Grand Junction terminal to the Boston terminal at Matthew's and Sargeant's wharf next to Lewis wharf (see Fig. 12). The People's Ferry was established in 1852, and left East Boston from its wharf at the foot of Border Street to its Boston terminal at Lincoln wharf in the North End (see Fig. 12). It fell under city management in 1869. Passenger fare to Boston objected as discriminatory. Prior to the completion of the Grand Junction terminal the ferries were also the major cargo carriers in the harbor, carrying all the ship timber to the East Boston yards.

The Atlantic works, a shipyard to build and repair steam vessels (especially the port's tugs and ferries) was established next to the Grand Junction Terminal in 1853. In 1869, the works moved to a more spacious site on the west shore of East Boston (Bunting 1971).

Although the physical development of East Boston from Noddles and Breeds Island is enormous, the most obvious topographic change was filled for the construction of Logan airport. The western and southern shores of East Boston were built up in the mid-nineteenth century, but subsequent development consisted of minor restructuring of specific structures or small areas.

Charlestown

Twenty three dilapidated or partially dilapidated structures are located at the Charlestown waterfront. Charlestown was the location at which John Winthrop and the first settlers arrived, where they first settled before they moved to Boston, later in 1631. A ferry was established between Boston and Charlestown in 1631. The early development of Charlestown maintained pace with

Boston: by 1708 there were a total of 78 wharves in Boston and Charlestown (Baker 1969).

In 1797 the federal government established a shipyard on a 43 acre mud flat in Charlestown. Charlestown, situated between the Mystic and Charles River with a deep water launching site, was a convenient location near Boston shipbuilders and related merchants (Bunting 1971). Prior to the Civil War, the Navy Yard was an active and complete complex. A superior dry dock was built between 1827-1833 of Quincy granite. Designed by Loammi Baldwin, the dry dock is an example of notable engineering and is still in use. In addition to the dry dock, the Navy Yard contained a fine ropewalk, shiphouses, launching ways, foundries, smithers, machine shops and timber sheds and basins. The Navy Yard succumbed to the post Civil War inactivity and was not redeveloped until the early twentieth century. The ropewalk was still in use during 1897, when the USS Constitution was reconditioned (an example of the sometimes usefulness of maintaining an archaic navy facility). During 1905, a new 729' granite and concrete dry dock was constructed and in general, the yard facilities were overhauled (Bunting 1971:60).

The Navy Yard was designated a National Historic Landmark in 1966 and the Commandants Quarters is on the National Register of Historic Places. The Yard was decommissioned as a Navy facility as of July 1, 1974.

Although the Navy Yard has been a dominate presence on the Charlestown waterfront since its inception, Charlestown has supported a number of other port activities. Most notably, between 1805 through 1870 Charlestown was the center of the ice shipping trade. Frederick Tudor, the "ice king" combined two "worthless" commodities, ice and sawdust, and amassed a fortune (Morison 1921). Ice was shipped to Europe, South America, Australia and the Orient from the Charlestown wharves, between the Charlestown bridge and the Navy Yard. The ice itself, was cut mostly from Fresh Pond, Cambridge. Besides Tudor, Charlestown was home to more than a dozen firms exporting ice in the mid-nineteenth century, notably Damon, Gage and Harris (Bunting 1971).

Charlestown was connected to Boston in 1786 by the Charles River Bridge. The idea of a bridge had been suggested as early as 1720. The total length of this original bridge was 1,503 feet and cost 15,000 pounds. The bridge was 42' wide, had a 30' draw near the center and was set upon 75 oak timber piers. The Warren bridge opened as a public highway in 1828 (Whitehill 1968).

In the late 19th century the northern face of Charlestown was developed by the construction by the Mystic River Corporation of the Boston and Lowell Railroad Quays.

The waterfront was transferred to the B & M railroad in 1887 (see Fig. 16). These Mystic River docks became the center of the export lumber trade and the receiving point for domestic and Cape Breton coal used and distributed by the railroad. In addition, during the 1890's the Little Mystic channel was the center for boats heading for the Rio Plata, Argentina in the 1890's boom. Important steamship lines docking at these quays in 1913 were the Allan line to Glasgow, the Hamburg-American freight service line from Hamburg, the Wilson line to Hull, the Holand-American line to Rotterdam, the Havana line to Havana, the American-Indian line from Calcutta, the China-Japan line from Yokohama and the Clay line from England (see Fig. 19). Filling of Charlestown continued during the 20th century, until the little Mystic Channel developed the configuration known today.

The Hoosac terminal of the B & M railroad complemented the former sites of the great ice shipping wharves in 1875 and connected the Fitchburg with the B & M railroad. Principal exports brought by the railroads to Charlestown became livestock, provisions, grains and apples.

Boston

The waterfront of Boston proper is the location of the oldest functioning part of Boston harbor, although most of the 17th and 18th century Boston waterfront is now under later land fill. The topographic development of Boston through the twentieth century is the easiest to document, since a relatively complete series of maps of Boston proper from 1640 to the twentieth century is available.

Bonner's 1722 (Fig. 3) is the first map which gives a detailed impression of Boston. By 1722 the waterfront was already well developed. The town dock was by this time, already cut off from the harbor. Long Wharf, built in 1710 by Captain Oliver Noyes, extended King (State) Street out into the harbor and past the Barricadeo (sea wall) which had been constructed in 1681 as a fortified breakwater. Long Wharf was lined with a continuous row of shops and warehouses. By extending into deep water, Long Wharf permitted the direct unloading of ships without the use of smaller shuttle boats. Thus, Long Wharf became the focus of the economic life of early 18th century Boston water-front (Whitehill 1968).

Throughout the 18th century, the gradual reclamation of land by extending wharves continued. The Quincy Market areas was built from 1825, filling over the original area of the town dock and building over the wharves between the dock and Long Wharf (Whitehill 1968). The rate of reclamation both north and

south of Long Wharf increased in the beginning of the 19th century, as Central Wharf and India, Commercial and Lewis wharves joined Long Wharf and jutted into the harbor. The familiar modern configuration of the Boston waterfront was established in 1869 when Atlantic Avenue cut through the middle of India, Central and Long Wharves using fill from Fort Hill to the south. Atlantic Avenue was built to provide direct land access for the railways, thus tying Boston's transportation and freighting routes together (Whitehill 1968).

During the mid to late nineteenth century, whereas East Boston, Charlestown and South Boston were the locations of foreign commerce in Boston harbor, the waterfront structures of Boston proper were used by local fishermen, tow boats, excursion steamers and coastwise lines (Bunting 1971).

Rowe's Wharf was the berth for Nantasket excursion steamers, a popular and well run small steamboat line.

Foster's Wharf was the berth for the ferry to Nahant, a popular summer resort serviced by ferry since 1817. The City of Bangor service to Maine also used Foster's Wharf.

The Kennebec steamers to Maine operated from Lincoln Wharf during the summer. "T" Wharf, completed in 1882, became the center of Boston's fishing industry, as most fishing vessels moved over from Commercial Wharf.

During July to September, the Boston Floating Hospital operated from the North End Park, carrying 100 permanent and 150 temporary patients daily on steamboat excursions around Boston Harbor. The Fort Hill Dry Dock at 454 Atlantic Avenue serviced small local vessels in the harbor. Coastal steamers delivered coal to the Boston Gas & Light Co., North End Works.

A few wharves carried deep water activities in contrast to other wharves in the area. Fiske Wharf served as a berth for deep water vessels carrying sugar. Battery Wharf received salt from Sicily.

When Fish Pier in South Boston was completed in 1914 and the fishing industry moved to the large facility, many of the Boston wharves lost their economic support and fell into decay. The recent BRA development has stimulated the revitalization of the downtown waterfront, not as a commercial, but as a residential center.

South Boston

Only the present southern shore of South Boston is near the location of the original shoreline; most of South Boston is land reclaimed from the original mud flats. By the end of the 18th century only about 10 families lived on "Dorchester Neck", now South Boston (Whitehill 1968:76); at high tide it was possible to row a boat over the neck.

During the early 19th century real estate speculators began to assess the feasibility of turning the mudflats into dry land, anticipating Boston expansion southward. In 1804 Dorchester Neck was annexed to Boston. Along with the annexation, the General Court authorized the construction of a toll bridge to South Boston (as the area was renamed). The South Boston bridge was opened October 1, 1805 and spanned from Boston Neck to South Boston near the present location of E. Berkely Street where the distance was least. The bridge became a fashionable promenade due to the good view it afforded of Boston and was commonly known as the "bridge of sighs" due to the lovers who met there (Whitehill 1968:76). In addition, in 1804 a legislative package to enlarge the limits of Boston by making new land was passed.

A consortium of shore owners east of Washington Street and South of Beach Street combined forces in the "Front Street Corporation" to create a new street parallel to Washington on the mud flats (originally called "Front Street" and renamed "Morrison" in 1841, after the President's death). The space between the street and the original shore was to be filled individually. This street was also completed in October, 1805 - adding nine acres of land and beginning the expansion of Boston Neck (Bunting 1971:72).

The Front Street Corporation met opposition from proponents of a more direct and shorter bridge access to Boston. A new bridge at the end of Federal Street was built in 1828 after two decades of arguments. The new bridge undermined the South Bridge Corporation and the South Bridge was sold at a loss in 1832 to the city (Whitehill 1968).

Reclamation of South Boston flats continued throughout the 19th century. Oyster dealers continued to use undeveloped land for storage of oysters. By mid-century another block (Albany Street) paralleled Harrison Avenue into the South Bay and 4-6 blocks had been added south of Beach Street creating a narrow channel (Ft. Point Channel) from the harbor into the South Bay (see Fig. 10). In addition, the eastern shore and northern shores of South Boston were beginning to be reclaimed. In 1868 the Boston, Hartford and Erie railroad acquired rights to a flat and within 10 years spent \$1,000,000 on improvements. By 1883, the eastern shore of South Boston conformed to the present line with one 1000' pier and one 850' extension on a previous wharf (see Fig. 13, 14). However, the railroad terminal area only fulfilled its expectations after World War I. In the 1890's "Marine Park" was built for recreation; the sewer to Moon Island built in the 80's greatly improved swimming and yachting conditions in this area.

The major amount of filling of the flats around South Boston occurred in the early 20th century. Rubble from the great fire of 1872 was used in reclamation (Bunting 1971:69). The Commonwealth built a series of piers between 1913-1914, especially Pier No. 5 which was a large steamship facility and the "Fish Pier". The Fish Pier was a 1200' facility with a huge ice and cold storage plant; fishing vessels changed from their crowded downtown location at T wharf and recentered in South Boston (see Fig. 17 & 18).

Fort Independence on Castle Island is the oldest fortified site in the Massachusetts Bay Colony. Castle Island was connected to South Boston, first by bridge in 1891 and then by causeway connected to the mainland (1910's) and then by a series of fillings.

A number of structures in South Boston are associated with important port activities.

Harrison Loring's City Point Iron Works was a well known manufactory of stationary engines, especially sugar mills, but also for steamers in the mid-19th century.

George Lawley and Sons City Point yacht yard was the shipyard in which some of the wooden defenders of the America's Cup Race were built in the late 19th century. Notably the Puritan (1885) and the Mayflower (1886), both designed by Edward Burgess were built there.

(Probably) the first municipal beach in the country was established at the foot of "L" Street in 1866. "L" Street is still a bathing facility.

The Boston Yacht Club, the first yacht club in the Massachusetts Bay, was established in South Boston in 1865.

Quincy

Quincy was originally part of Braintree, but maintained an autonomous status; as early as 1703 the "North Precinct" (Quincy) was set off as a separate parish; in 1792 the town of Quincy was finally established (Edwards 1957).

From the early 18th century the town restricted free use of its granite. By 1748 even residents of Braintree/Quincy had to pay for the "rocks" (Barton 1940). Transport of Quincy granite to Boston (mostly by railroad) for construction was important throughout the 19th century. Bullfinch's India Wharf, Mayor Quincy's market and Dry Dock No. 1 at the Charlestown Navy Yard were constructed of this granite. However, after the great fire of 1872, use of Quincy granite diminished, since the granite weathered badly in the fire (Whitehill 1968).

Shipbuilding in Quincy is associated with the Fore River Shipyard established in 1883 by Thomas Watson. Originally the yard was located in East Braintree (Monatiquot), but was moved in 1901 to a deep water site on the Quincy Fore River. The Fore River Yard was the striking exception to the general deterioration of shipping after 1875. (Bunting 1971:94) The yard received a major naval contract in 1893, the first of many. It was taken over by the Bethlehem Steel, Shipbuilding Division, Quincy Yard, which in turn was taken over by General Dynamics, Inc.

Braintree

When Weymouth and Quincy were set off from Braintree, Braintree was left with only a small section of waterfront along the Fore River, a portion of which is included in this study (Barton 1940). East Braintree was the original 1893 location of the Fore River Ship and Engine building yard (at the mouth of the Monatiquot); George Thomas also built clipper ships there in the mid-19th century.

Braintree experienced an early growth of the fishing industry, which engendered attempts to regulate the construction of mills so fish could spawn. The 18th century fishing and farming communities clashed over alewife spawning vs grist mill construction (Barton 1940). Industrial growth was supported by good highway and railroad connections, but the industry was soon overshadowed by the great shoe centers like Haverhill and Lynn (Barton 1940).

Weymouth

Although Weymouth has a substantial shore line in Boston harbor (and in this project area) between the Fore and Back Rivers, the influence of Weymouth industries or businesses in the functioning of the port seems to be minimal as little mention has been made of the town in secondary sources. However, Bunting (1971:258) refers to some shipbuilding in the town in the late 19th century. Nevertheless, the town of Weymouth seems to be a non-industrialized waterfront residential center, which played a minimal role in port activities.

Few of the historic maps of the harbor include Weymouth's southern part of the harbor. Most of the structures designated by the Corps survey in Weymouth are small wharves associated with private dwellings.

Hingham

Although Hingham went through a brief industrial growth period at the beginning of the 19th century, mid-century industry was already declining and the town became a residential suburb (Lincoln 1893). Industries which were located near the harbor were: a copper and brass foundry on North Street, est. 1827; a flour and grain mill on the Weir River at the west foot of

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of Weir Street, est. 1788 and changed into a woolen mill in 1810 (destroyed by fire in 1829); and a manufacturing place for masts and spars, est. 1820's (Lincoln 1893).

Shipbuilding started as early as 1637 (Thomas Turner yards) at Goose Point, and gained importance during the 18th century, with Capt. F. Barker and Son's at the foot of Ship Street established in 1750. Barker built schooners and sloops. Subsequently using the Barker yard in the early 19th century were: Curtis and Barstown, Barnes and Litchfield and Hall, and G. Basset. The Bassets also had a wharf at Cove Street. Jeremiah Stodder had a yard on Canterbury Island, up the Weir River (Lincoln 1893).

Hingham specialized in coopering, the "Hingham bucket" was an item in use all over Boston harbor. At first the wares were collected locally and shipped by small local boats to Boston for redistribution. Sale of wares was located aboard the Hingham packets docked at Long Wharf. However, by 1840 Hingham ware were sold in lots to warehouse stores. Coopering was located at the head of wharves in Hingham where mackerel was packed. The industry declined in the 1860's.

Other supportive marine businesses in Hingham included sailmaking, cordage making, and fitting of masts and spars.

Steamboat service to Hingham from Boston began at midcentury, the wharf located between Barnes Rock and Lorings (Bunting 1971).

Hu11

Hull was and is a resort town in Boston harbor with a well known beach on the outer side, Nantasket beach. Excursion steamers to Hull and Mantasket operated after the Civil War (Bunting 1971). The Hull Yacht Club was founded in 1880 and within 8 years had 173 boats registered.

The first lifeboat station was established in the early 19th century by the Massachusetts Humane Society at Point Allerton. The strip from Pt. Allerton to Scituate was characterized by a high incident of shipwrecks (Smith 1917). The Life Saving Service (U.S.L.S.S.) was taken under federal auspices in 1874. Seventy-eight lifeboat and thirteen mortar stations of the U.S.L.S.S. were subsequently established around Boston Harbor. In 1915 the Revenue Service (in charge of customs) merged with the U.S.L.S.S. and formed the Coast Guard (Bunting 1971). The Coast Guard still maintains a facility at Point Allerton.

2. Boston Harbor Islands

Although all the Boston Harbor Islands are within the project limits of this study, only the following have waterfront structures recorded by the Corps: Deer, Thompson, Spectacle, Long, Moon Head, Rainsford, Gallops, Lovell, Georges, Calf, Great Brewster, Peddocks, Sheep, Bumpkin and Castle. In the past, the islands in the harbor have been owned both privately and publicly, although most of them are now publicly owned. In 1970 the Hassachusetts legislature created the Boston Islands State Park, and with the aid of Federal funds, developed the islands into a park system offering opportunities for hiking, exploring historic fortifications, fishing, boating, swimming and camping.

The islands were inhabited seasonally by Indians before European contact. European settlement began in the 1630's. Use of the islands for defense began in the colonial period, and continued through World War I and II.

Along with being used for fortifications, the islands were used for recreation and picnicking during the 19th century. Guest houses, inns, resorts and (illegal) gambling casinos operated on some of the islands. From the 18th century the islands have been important locations for maintaining harbor facilities. The first lighthouse in the country was established on Little Brewster in 1713. In 1852 the city set up a Harbor Commission to restrict ballast digging.

During the late 19th century the private use of the islands gave way to a variety of public institutions and usages such as hospitals, reformatories, poor houses and dead horse disposal facilities.

Following are short descriptive histories of many of the islands. Most of this information is from the romanticized tales of Edward Rowe Snow (1949), as well as Connelly (1932) and Kales (1976).

Deer Island comprises 183 acres, parts of which are owned by the city, the state and the federal government. The Suffolk House of Correction is situated on the island. A signal was established there in 1819. In 1897 the island was used to quarantine Irish immigrants stricken by ship fever. This facility was made permanent in 1849. In 1852 a poorhouse was established, now part of the prison. The poorhouse became a reformatory in 1854 and the poor were sent to Rainsford Island. In 1869 a farmhouse for poor girls was built. The present Suffolk County prison was started in 1876 (Snow 1949). Fort Dawes was commissioned in 1941.

Thompson's Island, named after the first settler among the islands in the 1620's, has been the site of the Farm and Trade School of the Boston Asylum for Indigent Boys since 1819.

Spectacle Island was the quarantine station for the port of Boston from 1717 to 1737, when it was moved to Rainsford Island due to the purchase of Spectacle by Richard Bill. During the 19th century two summer hotels were set up. However, a gambing raid by Boston police in 1857 initiated the decline of the resorts. In 1892 the garbarge rendering plant on Moon Island was transferred to Spectacle. Dead horses and cows were sent there to be turned into fertilizer; the obnoxious odor was the bane of Nantasket-bound 19th century steamer passengers (Bunting: 1971).

Moon Head Island was the terminal for the great sewer from Boston in 1878. Sewerage was dumped into outgoing tides, which greatly improved swimming and yachting conditions in South Boston.

Rainsford Island was the site of the quarantine station from 1737 to 1849 when the State took over the island. A State poorhouse was established, but the City bought the island and the facility became a City poorhouse. After the Civil War, verterans used the facility until they were moved to the Soldiers Home in Cheslea in 1882. Between 1882-1885 the paupers were moved to Long Island and boys convicted of misdemeanors were sent to Rainsford. Thus a juvenile district, separate from the adult reformatory on Deer Island, was established. This "Suffolk School for Boys" closed in 1920 (Snow 1949).

Gallops Island was a resort during the 1830's. Boston owned the island during the 1850's and leased it to the Federal government during the Civil War. The quarantine station was moved here in 1866. By 1879 two hospital buildings were established, later changed into a Maritime training school.

Lovell's Island became the federal facility for the maintenance and repair of navigational buoys in 1874. The War Department took over the island and built Fort Standish in 1900.

Georges Island comprises 40 acres. In 1834 the Army Corps of Engineers under direction of Lt. Col. Sylvanus Thayers began construction on Fort Warren, designed to be the key to Boston harbor defense. The fort is a bastioned star fort made of Quincy granite. Although it has undergone two periods of modernization, between 1871-1876 and 1898-99, the fort remains nearly the same structurally as the mid-1800's.

The MDC administers the fort and maintains a marina. Fort Warren is on the National Register of Historic Places.

Calf Island was owned privately until World War I.

Great Brewster Island has belonged to the Second Baptist Church of Boston since the early 18th century. A beacon was established in 1681.

Peddocks Island was fortified when the U. S. government built Fort Andrews in 1897. During the early 1900's a number of resorts were active at the West End of the island.

Sheep Island was the summer place of a Weymouth family.

Bumpkin Island was willed to Harvard College in 1682. A five hundred year lease was signed by Clarence Burrage for the construction of a children's hospital in 1901. During World War I the Navy used the hospital.

Castle Island is the oldest fortified site in the Massachusetts Bay Colony. John Winthrop established a fortification there in 1634. The structure (variously called, "The Castle", "Fort Independence", "Fort William") has gone through numerous structural additions notably in the early 1700's, 1741, 1809, 1851, and 1870-71. The island itself was connected to the mainland by a bridge in 1891, then by a causeway and finally attached to the mainland by a series of fillings. Fort Independence is on the National Register of Historic Places.

V. SURVEY RESULTS

A. Procedures

The goal of this Reconnaissance Survey is to identify sensitive areas that are likely to contain potentially significant historic structures or cultural resources within the project area and to eliminate those areas that do not have a high probability of containing significant historic properties. Since the level of research in a Reconnaissance Survey is necessarily general, it is more often possible to establish areas as being "sensitive" or "not sensitive" than to pinpoint individual structures as culturally significant. In a subsequent intensive level of investigation, the cultural significance of individual structures within designated "sensitive areas" will be examined. In addition, it is possible that further research may locate a significant structure in an area that had been eliminated as "not sensitive" in this $Phase\ I$ survey. Therfore, flexibility in interpreting the following limits of potentially "sensitive" areas is recommended.

The following standards have been used to establish areas in which a low probability for significant structures exists.

- 1. The 50 year limit established as a criteria for eligibility for inclusion to the National Register has been applied throughout the project area. Any location of structures younger than 50 years is herein considered non-sensitive.
- 2. Private structures in the form of piers, wharfs and boat houses and retaining walls are considered nonsensitive because they are commonly represented in the general area and do not constitute unique of exceptional examples of this resource.
- 3. Structures which are listed in the Corps record sheets as in fair to good condition are not considered in this study since they will not be impacted.
- 4. Areas in which the "integrity" of setting, location and association has been disrupted are considered non-sensitive.

5. Structures or areas which have been highly disturbed by modern activities are considered as non-sensitive.

Areas of probable sensitivity have been established according to standards which correspond to National Register criteria of significance:

- 1. An area may contain potentially significant waterfront structures if it is the location in which a certain activity (or activities) which made significant contribution to the broad patterns of American history was carried out (cf. activity matrix, see fig. 2).
- 2. Certain structures may be potentially significant if they are uniquely distinctive of a certain type of period of construction.
- 3. Areas in which the "integrity" of location, setting, feeling and association in regards to important harbor activities is preserved, may be potentially sensitive.
- 4. Areas or structures already on the National Register of Historic properties are considered sensitive.
- 5. Areas or structures that are near a known historic or prehistoric site are considered sensitive.

In the following demarcation of sensitive or non-sensitive areas, these sets of assumptions will be referred to in order to justify assessments. In addition, the activities suggested as being localized in the "sensitive" areas will be listed with reference to the activity matrix (Fig. 2).

B. Sensitive Areas and Structures

- 1. National Register Properties within the project area.
 - 1. The U.S.S. Constitution, docked at the Charlestown Navy Yard.
 - 2. Boston Light, Little Brewster Island.
 - 3. Long Wharf and Custom House Block, foot of State Street.
 - 4. Boston Naval Shipyard, East of Chelsea Street, Charlestown.
 - 5. Fort Warren, Georges Island.
 - 6. Fort Independence, Castle Island.
 - 7. Boston National Historical Park, Inner harbor at mouth of Charles River.

In 1975, a joint petition by Dr. Barbara Luedtke, University of Massachusetts, Boston and the Massachusetts Historical Commission to include Boston Harbor on the National Register was rejected by the National Park Service on the grounds that the area was too large to adequately administer as a National Register district. However, the Park Service suggested thay many of the specific structures and locations within the harbor might be eligible on their own merit, and that these applications for inclusion would be considered. The following properties already included on the National Register, include or are near structures designated as dilapidated or partially dilapidated by the Corps:

Boston Naval Shipyard Fort Independence Boston National Historical Park

Structures located within or near these structures must be investigated in a Phase II intensive survey to assess their potential significance within the context of nearby or adjacent National Register sites.

2. Sensitive Areas

The following list contains all the general locations in the project area which seem potentially sensitive. The justifications by which these areas were selected as sensitive are listed by "sensitivity standard" number, as itemized above in section A, "Procedures". In addition, the activities and spheres of extension (cf. Fig. 2, Activity Matrix) which may have occurred in these locations are listed. For specific information on structures see Appendix II, "Cultural Resources in Impact Area".

A. Deer Island, harbor side

sensitivity standards: 1,3

activities: maintenance (local), coastal & deepwater)

recreation (local)

| Town/Island Str.#/map# | | | Comments |
|---------------------------|-----------------------------|---|------------------------------|
| Deer Island 1/5 | wharf D | A | Owned by U.S. Govern. |
| Deer Island 2/5 | bulkhead D security wall | A | Owned by U.S. Govern. |
| Deer Island 4/5 | wharf D | A | Owned by MDC "old coal pier" |

These structures may be associated with the 19th century establishments of almshouses and reformatories on Deer Island. They also might be associated with earlier use of Deer Island for recreation.

B. East Boston, south and west shores

sensitivity standards: 1,2,3

activities: shipbuilding (local, coastal, deepwater)

trade (local, coastal, deepwater)

transportation (local, coastal, deepwater)

marine businesses (local)

| Town/Island Str.#/Map# | | Type of Str & Condition Structure D=dilapidat PD=partiall dilapidated | of ed Y | Sensiti Area-lett Structure | er |
|---------------------------|------|---|---------------|-----------------------------------|--|
| East Boston | 28/4 | wharf | PD | В | Formerly Navy fuel pier, now mooring, "Old Navy Fuel Pier" |
| East Boston | 32/4 | wharf | PD | В | Bethlehem Steel Co. pier 3 |
| East Boston | 37/3 | wharf | D | В | owned by Port of Boston Comm. May be used for part of grand junction term. |
| East Boston | 41/3 | ferry slip | D | В | probably slip for East Boston ferry |
| East Boston | 42/3 | wharf | D | В | national dock & storage ware-house-photos show railway probable connection with freight handling |
| East Boston | 43/3 | wharf | D | В | Boston "1800" restaurant & antique shops |
| East Boston | 44/3 | wharf | D | В | |
| East Boston | 45/3 | wharf | D | В | next to Hodge Boiler Works |

| Town/Island Str.#/map # | | Type of St. & Condition Structure D=dilapida PD=partial dilapidate | n of ted ly | | Sensitive Area-letter Structure * | Comments |
|----------------------------|------|--|-------------------|---|---|---|
| Bast Boston | 46/3 | wharf | D | В | | ge Boiler Works, Pier |
| East Boston | 47/3 | wharf | D | В | Hodo N. F | ge Boiler Works, Pier |
| East Boston | 48/3 | wharf | D | В | Old Pier | Lockwood Basin |
| East Boston | 49/3 | wharf | D | В | Pike poss | ed by Mass. Turn- e Authority, sible People's ry wharf |
| East Boston | 50/3 | wharf | D | В | Bost Pier | on Marine Works |
| East Boston | 51/3 | wharf | D | В | Bost Pier | con Marine Works |
| East Boston | 52/3 | wharf | D | В | | is Hole Ocean- aphy Pier |
| East Boston | 53/3 | wharf | D | В | poss whan | sible Aspinwall's |
| East Boston | 54/3 | wharf | D | В | | sibly Kolmes' & lings' |
| East Boston | 55/3 | wharf | D | В | | ways obvious n photo |
| East Boston | 56/3 | wharf | D | В | Pick | ert Pier |
| East Boston | 61/1 | wharf | D | В | | oal Bulk Trans- |
| East Boston | 62/1 | wharf | D | В | | oal Bulk Trans- |
| East Boston | 63/1 | dry docks | D | В | port next | oal Bulk Trans- Inc. dry dock to site of 's Shipyara |
| East Boston | 64/1 | wharf | D | В | Glob | oal Bulk carriers |
| East Boston | 65/1 | wharf | D | В | Carı | er: Global bulk ciers |
| | | | | | Annana | is E |

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| Town/Island Str.#/map # | | Type of St & Condition Structure | | Sensitiv Area-let Structur | ter |
|-------------------------|------|----------------------------------|----------------|----------------------------------|--|
| East Boston | 66/1 | wharf | D | В | possible site of Hall's Shipyard |
| East Boston | 67/1 | wharf | D | В | possible site of Hall's Shipyard |
| East Boston | 68/1 | wharf | D | В | |
| East Boston | 69/1 | wharf | D | В | Suffolk Coal Pier |
| East Boston | 70/1 | wharf | D | В | |
| East Boston | 71/1 | wharf | PD | В | City Fuel Co., South Pier |
| East Boston | 73/1 | wharf | PD | В | City Fuel Co., lighter Pier |
| East Boston | 74/1 | wharf | PD | В | Acme Pier |
| East Boston | 76/1 | wharf | PD | В | General ship & engine works; plan of struct-ure 1939 |
| East Boston | 79/1 | wharf | D ₁ | В | possibly Geo. McQuesten lumber yard |
| East Boston | 80/1 | wharf | D | В | Geo. McQuesten lumber co. long pier, possibly previous site of D. McKay's shipyard |
| East Boston | 81/1 | wharf | D | В | Geo. McQuesten Co. lumber yd. possibly previous site of D.McKay shipyard |
| East Boston | 82/1 | wharf | D | В | John Forward Wharf |

Some of these structures may be associated with 19th century shipbuilding in East Boston. Others may be wharves from which the two East Boston ferries ran during the 17th to early 20th century. Many wharves probably have been the location of a vast array of marine business such as lumber yards and chandleries. Other wharves were undoubtedly involved in both coastal and deepwater trade. Appendix 5

C. Chelsea Creek and Chelsea front

sensitivity standards: 1,3

activities: shipbuilding (deepwater)

| Town/Islam Str.#/map | | Type of Structur & Condition of Structure | ce | Sensitive Area-letter Structure * | Comments |
|----------------------|--------|---|----|---|---|
| Chelsea | 114/1 | bulkhead | PD | С | Samuel Cabot Co. possible ship- building site |
| Chelsea | 115/1 | wharf | D | С | possible ship- building site |
| Chelsea | 116/1 | Marine RR | D | С | possible ship- building site Harbor Transmiss. Co. |
| Chelsea | ,117/1 | wharf | D | С | possible ship- building site |
| Chelsea | 118/1 | wharf | D | С | possible ship- building site |
| Chelsea | 119/1 | marine railway | D | С | possible ship- building site |
| Chelsea | 120/1 | wharf | D | С | possible ship- building site |
| Chelsea | 121/1 | wharf | PD | С | possible ship- building site |
| Chelsea | 122/1 | wharf | D | С | possible ship- building site |
| Chelsea | 123/1 | marine railway | D | С | possible ship- building site |
| Chelsea | 124/1 | wharf | D | С | possible ship- building site |
| Chelsea | 125/1 | wharf | PD | С | Seaboard Constr. Co. possibly used for lumber |
| Chelsea | 126/1 | wharf | D | С | AA Hersey & Son, pier |

These wharves are possibly the remainder of an active 19th century shipbuilding site on the Chelsea waterfront.

D. Chelsea, main ship channel

sensitivity standards: 1,3

activities: shipbuilding (deepwater)

transportation (local)

| Town/Islar Str.#/map | | Type of Struct & Condition of Structure | | Sensitive Area-lette Structure | - |
|----------------------|-------|---|----|--------------------------------------|----------------------------------|
| Chelsea | 139/1 | Marine RR. | D | D | Dry Dock, Boston Dry Dock Co. |
| Chelsea | 141/1 | wharf | PD | D | Pier #5 Munro, ship repair |
| Chelsea | 142/1 | wharf | D | D | Pier #6 Munro, ship repair |
| Chelsea | 143/1 | wharf | PD | D | Metropolitan Oil Co. |

These waterfront structures may be associated with 19th century shipbuilding. Also, the slip for the Chelsea ferry was located in this area, and one of these structures might be associated with the ferry.

E. Charlestown shoreline

sensitivity standards: 1,2,3,4

activities: maintenance (coastal, deepwater)

shipbuilding (local, coastal, deepwater)

marine businesses (local, deepwater)

trade (local,coastal, deepwater)

| Town/Island Str.#/map# | | of Structure dition of ture | | Sensitive Area-letter Structure * | Comments |
|---------------------------|-------|-----------------------------------|----|---|--|
| Charlestown | 171/1 | wharf | PD | E | U.S. Gypsum Co. (Mystic Docks) |
| Charlestown | 172/1 | bridge fender | D | E | Chelsea Bridge 1803(cf. 145) |
| Charlestown | 173/1 | wharf | D | E | Fornier Marine previously Mystic Pier n.50 |
| Boston | 175/1 | bridge fender | D | E | 1803 Chelsea Bridge (cf. 145,172) |
| Charlestown | 176/1 | bridge fender fender | D | E | probably part of 1803 Chelsea Brid. |
| Charlestown | 177/1 | old bridge fender | D | E | possibly part of 1803 Chelsea Brid. |
| Charlestown | 181/1 | wharf | PD | E | Boston Navy Ship- yard |
| Charlestown | 190/3 | wharf | PD | E | Pier No. 3 Boston Navy Yard |
| Charlestown | 194/3 | wharf | PD | E | Boston Navy Yd., Pier No. l |
| Charlestown | 196/3 | wharf | PD | E | Hoosac pier #1, previous site of ice export wharfs |
| Charlestown | 197/3 | wharf | PD | E | Grand Rapids furniture whse. previous site of ice export wharfs |
| Charlestown | 198/3 | wharf | D | E | possible location of Tudor's wharf |
| | | | | ļ | Appendix 5 |

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Charlestown 199/3 bridge fender D system

) E

location of 1786 Charlestown Bridge.

Some of these structures are in the Boston Navy Shipyard, a National Register site. Others may be associated with deepwater trade ventures such as exporting lumber and ice and importing products from Rio Plata. Some structures may be the remains of early bridges linking Charlestown to Chelsea.

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F. Boston, Charles River front

sensitivity standards: 1,3,4

activities: maintenance (local)

fish (local)

trade (local, coastal)

transportation (local)

marine businesses (local, coastal)

| Town/Isl | | Type of Structur & Condition of Structure | e | Sensitive Area-letter Structure * | Comments |
|----------|-------|---|-------|---|--|
| Boston | 207/3 | wharf | D | F | now 1-2-3 car wash |
| Boston | 208/3 | wharf | PD | F | U.S.E.D. Wharf |
| Boston | 209/3 | wharf | PD | F | police dept. |
| Boston | 210/3 | wharf | D | F | possibly North End Park |
| Boston | 213/3 | wharf | PD | F | U.S. Coast Guard pier 3 previous location of Constitution wharf |

These structures may be concerned with the commercial center of the historic Boston waterfront. Fishing and local trading activities were important from the 17th century Boston waterfront to the present day.

G. Boston, Fort Point Channel

sensitivity standards: 1,3

activities: maintenance (local)

fishing (local)

trade (local)

transportation (local, coastal)

marine businesses (local)

recreation (local)

| Town/Is Str.#/m | | & Condition of Area | | nsitive -letter cture * | Comments | |
|--------------------|-------|---------------------|----|-------------------------------|------------------|--|
| Boston | 214/3 | wharf | PD | G | wharf- | ppraiser stones possible on-Otis wharf |
| Boston | 216/3 | wharf | D | G | | usly City of dumping wharf |
| Boston | 217/3 | wharf | D | G | Harbor Sherat | bldg. near |
| Boston | 218/3 | wharf | PD | G | Atlant | ic Park Corp. |

Although much land disturbance occured in the Fort Point Channel in the early 20th century (see Fig. 20), the waterfront in this area was historically very active. These structures may be associated with some of the activities listed above.

H. South Boston, Fort Point Channel

sensitivity standards: 1,3

activities: trade (local, coastal, deepwater)

transportation (local)

| Town/Islan Str.#/Map | # & Co | Type of Structure & Condition of Structure | | itive -letter cture * | Comments |
|----------------------|--------|--|----|-----------------------------|-------------------------------------|
| Boston | 231/3 | wharf | PD | Н | |
| Boston | 232/3 | bridge fender Northern Av. | PD | Н | |
| Boston | 233/3 | wharf | PD | Н | Pier #1 New Haven fan house yard |
| So Boston | 234/3 | wharf | PD | Н | "old pier #2" |

The structures might be associated with one or both of the early 19th century bridges connecting Dorchester Neck with Boston proper. They also might be related to the late 19th century relocation making South Boston the center of major trade activity in Boston.

I. Castle Island

sensitivity standards: 1,3,4

activities: maintenace (local, deepwater)

recreation (local)

| Town/Island Str. #/map# | Type & Condition of Structure | Sensitive Area- letter Structure * | | ea- | Comments |
|----------------------------|-------------------------------|--|---|------|-------------|
| Boston 267/6 | fireboat slip | PD | I | U.S. | Coast Guard |
| So Boston 269/6 | wharf | D | I | | |

Fort Independence, on Castle Island, is a National Register site; these structures may relate to the historical significance of the site. They also might relate to use of the Castle Island area for recreation.

J. South Boston, marine park to "L" street

sensitivity standards: 1,2,3

activities: recreation (local)

Town/Island Type & Condition Sensitive Area- Comments
Str.#/map# of Structure letter
Structure *

So Boston wharf PD J Columbia Yacht Club
272/6

The South Bpston waterfront was one of the first areas in the country to be organized for public recreation. This wharf may have historical signficance for the activities of one of the earliest yachting clubs in the Boston Bay area.

K. Quincy, Fore River

sensitivity standards: 1,3

activities: shipbuilding (deepwater)

| Town/Island Str. #/map# | | Type of Structure & Condition of Structure | Sensitive Area-letter Structure * | | Comments | |
|----------------------------|--------|--|---|---|---|--|
| Quincy | 330/18 | marine railway | D | к | possible original area of Fore River Ship & Engine Co. | |
| Quincy | 331/18 | marine railway | D | K | | |
| Quincy | 332/18 | marine railway and cradle | D | K | | |
| Quincy | 336/18 | bulkhead | Ø | K | | |
| Braintree | 341/18 | temporary wharf | D | K | | |
| Braintree | 342/18 | bulkhead | D | ĸ | | |

These structures may be part of the original Fore River Shipyard, a shipbuilding yard which succeeded in contrast to the general deteroriation of other yards in the harbor during the late 19th and earlier 20th centuries.

3. Sensitive Structures

A. In addition, the structures on the following list have been designated as potentially significant. The sensitivity standards and relevant activities for each of the individual structures are listed below.

| Town/Island Str.#/map# | Type & Condition of Structure | 1 | Sensitive Letter Structure | | a- Comments |
|---------------------------------|-------------------------------|----|----------------------------------|-------------|--|
| Winthrop 17/2 | RR Bridge | PD | * | р | its in local trans- ortation activity atrix slot |
| East Boston 91/1 | wharf | D | * | F | ld Boston Ice Co. ormer use, ammonia ine transport |
| Chelsea 130/1 | wharf | PD | * | р 1 | astern Minerals Inc. vier previously ight-house depot, apper wharf |
| Chelsea 131/1 | bulkhead | D | * | W G 1 | Castern Minerals Wharf, Old Coast Guard Wharf, previous Lighthouse depot, Lower wharf. |
| Chelsea 145/1 | bridge | D | * | C | Chelsea Bridge 1803 |
| So Boston 238/3 | wharf | PD | * | E f | Boston fish pier Finished 1914 |
| Boston (Long Island 300/7 | wharf) | PD | * | | |
| Boston Long Island 301/7 | wharf | D | * | 3, | mil. from hospital |
| Boston Moon Ho 302/11 | ead wharf | D | * | | |

| Quincy 309/15 | wharf & dry dock | ם | * | Quincy Adams yacht yard est. 1903. In 1950's got Navy contract to make destroyers. |
|--------------------------|--------------------------------|----|---|--|
| Quincy 313/18 | wharf | D | * | Duane Wrecking Co. near prehistoric site (cf. MHC files) |
| Weymouth 384/19 | granite quay & fender piles | D | * | Old Bethlehem ship- yard |
| Hingham 444/20 | bulkhead | PD | * | |
| Hingham 445/20 | boat yard | PD | * | |
| Hingham 448/20 | cat walk | D | * | unique transport facility |
| Hull 461/17 | wharf/quay | D | * | excursion ferry dock & facility at Nantasket. |
| Hull 512/12 | wharf | D | * | excursion ferry ticket & loading office |
| Hull-Peddocks 1/12 | wharf | PD | * | |
| Hingham-Bumpkin 1/16 | wharf | D | * | possibly associated with 1900 Hospital |
| Boston-Rainsford 1/12 | wharf | D | * | |
| Boston-Rainsford 2/12 | wharf | D | • | |
| Boston-Spectacle 1/7 | wharf | D | * | |
| Boston-Spectacle 2/7 | wharf | D | * | |
| Boston-Spectacle 3/7 | wharf | D | * | |

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Boston-Spectacle wharf D *

Boston-Thompson wharf D *

Boston-Thompson retaining D * this structure is near a known prehistoric site (cf. MHC files)

Boston-Thompson pilings D *

B. Sensitive Structures: Sensitivity Standards and Activities Structure 17, Winthrop sensitivity standards: 1,2,3 activities: transportation (local) Structure 91, East Boston sensitivity standards: 1,2,3 activities: transportation (local, coastal, deepwater) shipbuilding (local, coastal, deepwater) Structures 130, 131, Chelsea sensitivity standards: 1,2,3 activities: maintenance (local, coastal) Structures 145, 172, 175, 176, Chelsea and Charlestown sensitivity standards: 1,2,3 activities: transportation (local) Structure 238, South Boston sensitivity standards: 1,2,3 activities: fishing (local, coastal, deepwater) trade (local, coastal) Structures 300, 301, Long Island sensitivity standards: 1,3 activities: maintenance (local, coastal, deepwater)

recreation (local)

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Structure 309, Quincy

sensitivity standards: 1,3

activities: shipbuilding (deepwater)

Structure 313, Quincy

sensitivity standards: 5

activities: n.a.

Structure 384, Weymouth

sensitivity standards: 1,2,3

activities: shipbuilding (coastal, deepwater)

Structures 444,445, Hingham

sensitivity standards: 1,3

activities: maintenance (local)

marine businesses (local)

Structure 448, Hingham

sensitivity standards: 1,2,3

activities: transportation (1 cal)

Structure 461, Hull

sensitivity standards: 1,2,3

activities: transportation (local)

recreation(local)

Structure 512, Hull

sensitivity standards: 1,2,3

activities: transportation (local)

recreation (local)

Peddocks Island #1

sensitivity standards: 1,3

activities: maintenance (local, coastal, deepwater)

recreation (local)

Bumpkin Island #1

sensitivity standards: 1,3

activities: recreation (local)

Rainsford Island #1,2

sensitivity standards: 1,3

activities: maintenance (local, coastal, deepwater)

recreation (local)

Spectacle Island, # 1,2,3,4

sensitivity standards: 1,3

activities: maintenance (local, coastal, deepwater)

recreation (local)

Thompson Island, # 3,4,5

sensitivity standards: 1,3,5

activities: maintenance (local, coastal, deepwater)

recreation (local)

C. Shorefront dumps: Only five shorefront dumps are listed as possible sources of flotable debris. These are all located in Boston: one on Thompson's Island, one on George's Island and three in East Boston.

The data provided by the Corps relating to shorefront dumps is sparse. Depth of deposits is not approximated.

Photos are usually not helpful in trying to determine dates of artifacts. Field examination of the following two (2) dumps is recommended to evaluate the presence (if any) of significant cultural materials:

Thompson Island D-1

Georges Island D-1

The following dumps:

East Boston 1,2, and 3

appear to contain 20th century materials (e.g., concrete slabs, etc.) are not recommended for further examination.

Loose on shore debris

On-shore debris by its very nature will be so disturbed by tides and currents that its historical association and integrity will be lost. In most cases the debris is on shore due to vagaries of harbor and currents depositing the material and not to historical processes. In addition, the vast majority of such materials are very modern in origin and represent a category of data that is abundantly present in many other dumping or disposal situations. Therefore, sources of loose on-shore debris do not represent potentially significantly cultural resources.

D. Non-Sensitive Areas

Structures not within areas A-K on the map in Fig.

21 and structures not indicated as possibly significant in
section V B of this report are considered non-sensitive.

For specific information on particular structures see Appendix

II. However, as stated above in V, A . future intensive survey
may uncover new background information indicating a potentially
significant structure may exist in an area designated as nonsensitive on the basis of this Reconnaissance Survey. Flexibility
in drawing the scope of work for Phase II is strongly urged.

VI. Summary and Recommendations for Intensive Investigations

An assessment of the potential historic significance of particular locations with the study area has been completed with the following results:

- 1. Eleven potentially sensitive locations are indicated.
- 2. Thirty additional isolated structures are indicated as potentially sensitive.

Therefore, 118 structures out of the original 274 structures designated as dilapidated or partially dilapidated are recommended to be studied in Phase II/intensive survey. Out of the five shorefront dumps, two are recommended for further investigation. The 162 sources of loose on shore debris are considered not sensitive and are not recommended for further study.

The Phase II or intensive level of cultural resource investigations should target directly on the structures or areas indicated as potentially sensitive. For this level of investigation, literature research will still be the major component, in relationship to field work, with the possible exception of the two island dumps. It is often very difficult to determine whether a configuration of dilapidated pilings dates from Donald McKay's clipper ship wharf of a century ago, or a lumber pier of the 1930's, to pick an obvious hypothetical example. Specialized engineering studies on wharf technology and engineering might have to be consulted.

As a general rule, however, the intensive or Phase II research should move from the level of secondary sources and harbor area atlases or maps, to local histories and directories, insurance maps, local tax records and surveyed plans, and selected archival sources and probate records, for those sensitive areas or specific structures. The researcher should then be able to identify with some certainty the surviving or extant structure (s) with a specific period of historical development on that location.

It is anticiapted that a researcher at this stage should be prepared for some fairly creative mitigation options for structures that will be recommended as significant cultural resources according to National Register criteria. For example, it may be quite appropriate to recommend the

rehabilitation of an historic ferry terminal on Nantasket which involves driving new supportive piles, while it would be inappropriate to even recommend the stabilization of a handful of pilings which might probably be survivals of McKay's shipyard in East Boston. As appropriate in the latter case might be recommendations to: (1) move the McKay monument from Castle Island to the original site in East Boston; (2) build a new monument on the original site; (3) name the new housing project after McKay, and streets or squares after his vessels; (4) reconstruct the shipyard on paper including architectural drawings, photographs (both historic and modern) and plans. Given the severe environmental conditions to which the majority of dilapidated shorefront structures have been, and will continue to be exposed, recommendations for preservation in situ will be especially difficult to defend.

On the basis of the Public Archaeology Laboratory's experience with the existing study area and comparable investigations conducted by its personnel at the Salem Maritime National Historic Site and Castle Island, an intensive survey of the sensitive areas/structures/dumps should require about four to five man-months research and field effort. If the sensitive areas had been all located in one community rather than several, the proposed time/effort period would have been reduced to about $2\frac{1}{2}$ months to 3 months time. However, the logistics involved in a study area embracing twelve communities, with structures numbering in the hundreds, has proved to be both formidable and time consuming at the reconnaissance survey level. Research will continue to be difficult, since local collections, repositories, and public records will have to be investigated in each community containing potentially significant cultural resources. A budget for intensive investigations might reasonably project about \$12 - \$15,000, out of which \$8 - \$10,000 would represent direct costs in the form of salaries, materials, and other expenses.

The Public Archaelogy Laboratory at Brown University requests the opportunity of remaining informed about future policy or managment decisions which are based on the results of this survey.

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Smith, Fitz-Henry

Storms and shipwrecks in Boston bay and the record of the life savers of Hull. In: Bostonian Society Publications, 2nd series 2 (7-66).

Stark, James H.

1879 Illustrated History of Boston Harbor.
Photo-electrotype Co., Boston.

Sweetser, Moses F.

1382 King's Handbook of Boston. King: Cambridge.

Tilton, George P. ed.

1935 The Port of Boston. George D. Hall, Inc. Boston.

Writer's program, Work project Administration

1941 Boston looks seaward, the story of the port,

1630-1940. B. Humphries Co., Boston.

C. INSTITUTIONS

Boston Public Library
Boston Public Library (Rare Book Room)
Boston Public Library (Government Documents)
Massachusetts State Library
Massachusetts State Archives
Massachusetts Historical Commission
Massachusetts Historical Society
Boston University, Mugar Library
Harvard University, Widener Library
Metropolitan District Commission
Bethlehem Steel Shipyard

D. PERSONS CONSULTED

Dr. Barbara Luedtke, University of Massachusetts, Boston. Captain Albert Swanson, Metropolitan District Commission John Wilson, Massachusetts Division of Water Pollution Control

E. HISTORICAL COMMISSIONS

Massachusetts Historical Commission
(Frank McManamon, Staff Archaeologist)
Quincy Historical Commission
(Lars Lundin, Chairman)
Weymouth Historical Commission
(Charles Kevitt, Chairman)
Hingham Historical Commission
(James Wheaton, Chairman)
Hull Historical Commission
(Helen Raymond, Chairman)

APPENDIX I

ERRORS IN CORPS RECORD SHEETS & MAPS

The following structures were described as dilapidated on the Corps record sheets, but were listed as good on the maps:

153,183,177,259,370,479,481,492,495

The following structures were described as dilapidated on the Corps record sheets, but were listed as partially dilapidated on the maps:

269,461

The following structures were described as fair/good on the record sheets, but were listed as dilapidated on the maps:

58,59,263,403,404,431,461,494, 1-Gallops Island

The following structures were described as fair/good on the record sheets, but were listed as partially dilapidated on the maps:

78,106,108,109,110,125,193,146,163,469

In addition, 68 is uncrear whether dilapidated, partially dilapidated or fair.

Duplicate numbers: 10,13, 213

Missing record sheets: 282,283,374 Structures not on map: 2 Lovell Is.

5 Thompson Island

APPENDIX II

Cultural Resources in Impact Area

| nts | irit | formerly kavy fuel pier, now mooring,"Old Navy Fuel Pier" | Co. pier 3 | f Boston Comm. part of terminal | or East Boston Ferry | torage warehouse * railway tion ndling | antique shops | | oiler Works |
|--|---------------------|--|----------------------------|---|--|--|---|-------------|----------------------------|
| Comments | Approach pier light | formerly kavy fuel pier, now mooring,"Old Navy Fue | Bethlehem Steel Co. pier 3 | owned by Port of Boston Comm. may be used for part of grand junction terminal | probably slip for East Boston Ferry | nat'l dock and storage warehouse photographs show railway probable connection with freight handling | Boston "1800" restaurant and antique shops | | next to Hodge Boiler Works |
| Sensitive Area-lette Structure * | | Ω | £Ω | д | м | ф | ø. | æ | щ |
| Condition D=dilap PD=part dilap | q | PD | PD | Q | Q | Q | Q | Д | Д |
| Type of Structure | Airplane guide | wharf | wharf | wharf | ferry slip | wharf | wharf | wharf | wharf |
| Town/Island | Ea Boston Logan | East Boston | East Boston | East Boston | East Boston | East Boston | East Boston | East Boston | East Boston |
| Map# | 7 | . | | 0) | m | m | m | m | m |
| Str.# | 53 53 | 28 | 32 | 37 | T:1 | 24 | 143 | 77 | 4.5 |

APPENDIX II

Cultural Resources in Impact Area

| Comments | Owned by U.S. Govt. | Owned by U.S. Govt. | Owned by MDC "old coal pier" | Old boat pier | | Old yacht club pier | | Coast Marine, Inc. | | | fits in local transportation activity matrix slot | OTO HALLOW BONDE LALLACE |
|---|---------------------|---------------------------|---------------------------------|---------------|----------|---------------------|----------|--------------------|----------------|----------------|---|--------------------------|
| Sensitive Area-letter Structure * | A | ⋖ | Ą | | | | | | | | * | |
| Condition D=dilap PD=part dilap | D | Q | Q | Q | ū | Ω | А | PD | PD | Ω | PD | |
| Type of Structure | Wharf | buikhead security wall | wharf | wharf | wharf | wharf | bulkhead | wharf | wharf, mo>ring | wharf, mooring | RR bridge | |
| Town/Island | Deer Island | Deer Island | Deer Island | Winthrop | Winthrop | Winthrop | Winthrop | Winthrop | Winthrop | Winthrop | Winthrop | |
| # deli | 2 | ₹. | 2 | 5 | ſΛ | 2 | # | 2 | 8 | 2 | ٥ | |
| Str.# | 1 | ~ | . † | 2 | 9 | 2 | 10 | 12 | 13 | 17. | 17 | |

APPENDIX II

Cultural Pesources in Lapact Area

| :: # | Map# | Town/Elses | Cype of Ctructure | Condition Sensitive D=dilap Area-lette PD=part dilap Structure | Sensitive Area-letter Structure | Comments |
|---------|------|-------------|----------------------|--|---------------------------------------|--|
| 94 | ന | East Ecton | <u>፲</u> ፱፻፷ | प | Д | Holge Boiler Works, So. Fier |
| 1-11 | 0) | East boston | Wharf | ವ | æ | Holge Buller Works, N. Fier |
| 87 | 'n | East Boston | wharf | Q | ħ | Old Lockwood Basin Pier |
| 64 | т | East Boston | wharf | Ð | മ | cwned by Mass. Turnpike Authority, possible People's Ferry wharf |
| 50 | ε | East Boston | waarf | Q | щ | Boston Marine Works Pier |
| 51 | m | East Ecton | wharf | Q | வ | Boston Marine Works Pier |
| 52 | m | East Boston | wharf | Q | ស | Woods Hole Oceanography Pier |
| 53 | m | East Boston | wharf | Д | m, | possible Aspinwalls's wharf |
| ÷ (v) | ٣ | East Boston | wharf | Q | æ | possibly Kolmes' & Snelling:' |
| 55 | 8 | East Boston | wharf | Д | щ | railways obvious from photo |
| 56 | ٣ | East Boston | wharf | Q | д | Pickert Pier |
| 61 | Н | East Boston | wherf | Ω | ф | Global Bulk Transport Inc. |

APPEAL TO IT

Cultural Resources in Impact Area

| Comments | Global Bulk Transport Inc. | Global Bulk Transport Inc. dry dock next to site of Hall's Shipyard | Global Bulk carriers | owner: Global Bulk Cammienc | possible site of Hall's Shi <u>f</u> yard | possible site of Hall's Shipy ar d | | Suffolk Coal Pier | | City Fuel Co., South Fier | City Final Co., lighter Fier |
|---|----------------------------|---|----------------------|-----------------------------|--|--|-------------|-------------------|-------------|---------------------------|------------------------------|
| Sensitive Area-letter Structure * | മി | м | щ | рд | щ | മ | д | Д | щ | щ | м |
| Confition Cadilap Fompart dilap | 1 | Ü | a | a | a | Q | Ω | Д | Д | PD | PD |
| Cype of | Marf | dry dooks | Wharf | wharf | wharf | wharf | wharf | wharf | Wharf | wharf | wharf |
| Town/lsland | Bact Rooten | स्वतः अत्वर्भात | Eact Restor | East Boston | East Boston | East Boston | East Boston | East Boston | East Boston | East Boston | East Boston |
| # 25 50 20 | 7 1 | r 1 | · 1 | ~ | -1 | ۲۱ | | ~-1 | | | r 1 |
| Otr. # | 75 | | 7 | Ü | 99 | 19 | 68 | 69 | 7.5 | | · |

CORPS OF ENGINEERS WALTHAM MA NEW ENGLAND DIV F/G 13/2 BOSTON HARBOR, MASSACHUSETTS FEASIBILITY REPORT FOR DEBRIS REMO--ETC(U) AD-A092 397 MAY 80 UNCLASSIFIED NL 3 = 4 AD ADH/39*

APPENDIX II

Cultural Resources in Impact Area

| 10 | | works; | | long er Co. pier ce of | lumber yd. | | | | | |
|---|-------------|--|--|--|---|--------------------|---|-------------|-------------|------------------------|
| Comments | Acme Pier | General ship & engine works; plan of structure 1939 | possibly Geo. McQuesten lumber yard | Geo. McQuesten lumber Co. possibly previous site of McKay's shipyard | <pre>Geo. McQuesten Co. lumber yd. possibly prevíous site of D.McKay's shipyard</pre> | John Forward Wharf | "Gibby Foundry Pier" for shipping iron | | | Boston Sand and Gravel |
| Sensitive Area-letter Structure * | æ | щ | щ | ф | ф | ρQ | | | | <u> </u> |
| Condition Sensitive D=dilap Area-letter PD=part dilap Structure * | PD | PD | Д | Q | Q | Д | Д | Ω | Ω | ρ |
| Type of Structure | wharf | wharf | wharf | wharf | wharf . | wharf | wharf | wherf | wharf | wharf |
| Town/Island | East Boston | East Boston | East Boston | East Boston | East Boston | East Boston | East Boston | East Boston | East Boston | East Boston |
| Map # | П | H | н | rl . | н | п | н | г | н | н |
| Str.# | ηL | 76 | 79 | 80 | 81 | 82 | 85 | 98 | 87 | 68 |

APPENDIX II

Cultural Resources in Impact Area

| Sensitive Area-letter Comments lap Structure ** | | * Old Boston Ice Co. Former use, amnonia line transport | Old Navy Pier | 1927 - Gen. Ceramic Mfg. | Proctor Wharf | Mass Elect. Co., coal pier | N.E. Petrol Co. | Jenney mfg, Citgo | C Samuel Catot Co. possible shipbuilding site | | ears Surpringdius ergissod 0 |
|---|-------------|---|---------------|--------------------------|---------------|----------------------------|-----------------|-------------------|---|---------|--------------------------------|
| PD=part dilap | D | Q | Ω | D | Д | Д | Q | ED G | PD | Q | c |
| Type of Structure | wharf | wharf | wharf | - piles/building | wharf | wharf | wherf | wharf | bulkhead | wharf | |
| Town/Island | East Boston | East Boston | East Boston | Revere | Revere | Revere | Chelsea | Chelsea | Chelsea | Chelsea | |
| Map # | п | н | α | 2 | ۸. | ۲, | ٥ | H | ч | н | |
| Str.# | 06 | Ţć. | 95 | 100 | 101 | 701 | 104 | 113 | †T. | 115 | |

APPENDIX II

Cultural Resources in Impact Area

| r Comments | possible ship building site | possible ship building pier | possible ship building pier | possible ship building site | Seaboard Construction Co. possibly used for lumber | AA Hersey & Son, pier | Old Coal pier | Eastern Minerals, Inc. pier previously, light-house depot | Lastern Minerals Wharf Old Coast Guard Wharf previously light-house depot |
|---------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|---|-----------------------|---------------|---|---|
| Sensitive Area-letter Structure | ບ | υ | υ | υ | υ | υ | ບ | υ | υ | υ | | * | • |
| Condition D=Dilap PD=part dilap | D | A | a | Ω | æ | Ω | Q | Ω | PO | a | A | £ | a |
| Type of Structure | wharf | wherf | marine railway | wharf | wharf | wharf | marine railway | wharf | wharf | wherf | wharf | wharf | bulkhead |
| Town/Island | Chelsea | Chelsea | Chelsea | Chelsea | Chelsea |
| Map # | ٦ | ٦ | ۴I | н | н | 7 | 7 | -1 | ч | н | н | - | п |
| Str.# | 117 | 118 | 611 | 120 | 121 | 122 | 123 | 124 | 125 | 126 | 128 | 130 | 131 |

APPENDIX II

Cultural Resources in Impact Area

| Comments | Dry Dock, Boston Dry Dock Cc. | Pier #5 Munro, ship repair | Pier #6, Monro, ship repair | Metropolitan Oil Co. | Chelsea Bridge 1803 | U.S. Naval Hosp. | Eastern Gas Coal | Eastern Gas & Fuel Assoc. Coal Wharf | MDC Charlestown Pumping Station | Monsanto Chem. Co. | Penn Oil, Perini Co. | unlosding sand | probably built in 20th century filling along Mystic River | Charlestown front |
|--|-------------------------------|----------------------------|-----------------------------|----------------------|---------------------|------------------|------------------|---|---------------------------------|--------------------|----------------------|----------------|---|-------------------|
| Sensitive Area-letter Structure ** | Œ | Q | А | А | * | | | | | | | | | - |
| Condition Sensitive D-dilap Area-lette PD-part dilap Structure | Q | PD | Д | PD | Д | Ga | Д | Q | Д | æ | Д | а | æ | |
| Type of Structure | Marine RR. | wharf | wharf | wharf | bridge | wharf | wharf | wharf | wharf | wharf | wharf | wharf | bulkhead | |
| Town/Island | Chelsea | Chelsea | Chelsea | Chelsea | Chelsea | Chelsea | Everett | Everett | Charlestown | Everett | Somerville | Charlestown | Charlestown | |
| Map # | н | н | н | - | 1 | п | н | н | п | н | п | н | 7 | • |
| Str.# | 139 | 141 | 142 | 143 | 145 | 346 | 148 | 149 | 153 | 155 | 158 | 159 | 160 | |

APPENDIX II

Cultural Resources in Impact Area

| Str.# | Map # | Town/Island | Type of Structure | Condition D=dilap PD=part dilap | Sensitive Area-letter Structure * | Comments |
|-------|--------------|-------------|----------------------|---------------------------------------|---|---|
| 162 | н | Charlestown | wharf | PD | | Revere Sugar Refinery |
| 164 | п | Charlestown | wharf | 62 | | |
| 165 | ч | Charlestown | wharf | A | | Old Wiggin-McCormick Lumber Co. Pier |
| 166 | н | Charlestown | bulkhead | £ | | Wiggin-McCormick Hardware Co. |
| 167 | н | Charlestown | wharf | D. | Pari de Pila, arra, arra garaba d | Atlantic Cement Co. previous New Eng. Coal & Coke Co. wharf |
| 168 | н | Charlestown | wharf | A | | Wiggin Terminals Inc. |
| 171 | Н | Charlestown | wharf | £ | Þ | U.S. Gypsum Co. (Mystic Docks) |
| 272 | | Charlestown | bridge fender | A | EI | Chelsea Bridge 1803(cf.145) |
| 173 | н | Charlestown | wharf | A | Ħ | Fornier Marine previously |
| 175 | п | Boston | bridge fender | A | Þ | Mystic Fier n.50 1803 Chelsea Bridge (cf. 145, 172) |
| 176 | ન | Charlestown | bridge fender | Д | M | probably part of 1803 Chelsea bridge |
| 171 | - | Charlestown | old bridge fender | - | ы | possibly part of 1803 Chelsea Bridge |

APPENDIX II

Cultural Resources in Impact Area

| Correrts | Boston Navy Shirmani | Pier No. 2 Boston Nary Yard | Boston Navy Yd., Fier No.1 | Hoosac pier #1, previous site of ice export wharfs | Grand Rapids furniture whse. previous site of ice export | possible location of Tudor's wharf | location of 1786 Charlestown Bridge | | Boston Sand & Framel | B & M RR |
|---|----------------------|-----------------------------|----------------------------|---|---|---------------------------------------|--|-------------------------|----------------------|---------------|
| Sensitive Area-Letter Structure * | a | ĿП | ы | Œ | ы | ξú | ធ | | | |
| Condition D=dilap PD=part dilap | C.E | <u>.</u> | PD | & | æ | Q | Q | Q | Q | PD |
| Type of Structure | Wharf | Wharf | Wharf | Wharf | wherf | Wharf | bridge fender system | bridge fender system | wharf | bridge fender |
| Town/Island | Charlestown | Charlestown | Charlestown | Charlestown | Charlestown | Charlestown | Charlestown | Charlestown | Cambridge | Charlestown |
| Мар # | 1 | ٣ | 3 | м | m | m | m | К | m | m |
| Str. | 181 | 190 | 194 | 196 | 197 | 198 | 199 | 200 | 201 | 202 |

APPENDIX II

Cultural Resources in Impact Area

| Str.# | Мар # | Town/Island | Type of Structure | Condition D=dilap PD=part dilap | Sensitive Area-letter Structure | Comments |
|-------|-------|-------------|----------------------|---------------------------------------|---------------------------------------|--------------------------|
| 792 | 9 | Boston | wherf | £ | | |
| 265 | 9 | Boston | wharf | £ | | |
| 267 | 9 | Boston | fire boat slip | 6 | н | U.S. Coast Guard |
| 569 | 9 | So Boston | wharf | A | H | |
| 272 | 9 | So Boston | wharf | 2 | r | Columbia Yacht Club |
| 278 | 10 | Boston | yacht club | 2 | | Savin Hill |
| 281 | 97 | Boston | wharf | A | | |
| 285 | 10 | Boston | wharf | Q | | |
| 286 | 10 | Boston | wharf | Ð | | |
| 288 | 10 | Boston | wharf | Q | | New Eng. Marina, Inc. |
| 289 | 10 | Boston | wharf | a | | Harbor Lights Restaurant |
| 290 | 10 | Dorchester | wharf | A | | |
| 292 | 10 | Boston | wharf | A | | |

APPENDIX II

Cultural Resources in Impact Area

| Comments | pier #3, U.S. Navy | pier #2, Navy Annex | pier #1 | pier #10 | "L" St. | Mahoney's wharf | old Navy wharf | | | MBTA | | | | white fuel (Texaco) |
|---|--------------------|---------------------|---------|---------------|---------------|-----------------|----------------|----------|----------|--------|--------|----------|--------|---------------------|
| Sensitive Area-letter Structure * | | | | | | | | | | | | | | |
| Condition D=dilap PD=part dilap | D | Q | D | PD | Ć. | Q | Д | Q | Ω | Д | Q | £ | Д | æ |
| Type of Structure | wharf | wharf | wherf | wherf | bridge fender | wharf | wharf | bulkhead | bulkhead | wharf | wharf | bulkhead | wharf | wharf |
| Town/Island | Boston | Boston | Boston | Boston | Boston | Boston | Boston | Boston | Boston | Boston | Boston | Boston | Boston | Boston |
| Map# | 7 | -7 | .# | . | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| Str.# | 243 | 117.0 | 245 | 248 | 250 | 251 | 252 | 253 | 254 | 258 | 259 | 260 | 261 | 292 |

APPENDIX II

Cultural Resources in Impact Area

| Str.# | Map # | Town/Island | Type of Structure | Condition D=dilap PD=part dilap | Sensitive Area-letter Structure | Comments |
|-------|---------------|-------------|--------------------------------|---------------------------------------|---------------------------------------|--------------------------------------|
| 227 | т | Boston | wharf | Q | | |
| 228 | m | So Boston | wharf | Q | | |
| 229 | m | Boston | bulkhead | Ω | | |
| 230 | m | Boston | bldg walkway | Q | | |
| 231 | m | Boston | wharf | PD | я | |
| 232 | m | Boston | bridge fender Northern Ave. | PD | н | |
| 233 | m | Boston | wharf | GA. | # | Pier #1 New Haven fan house yard |
| 234 | m | So Boston | wharf | CL. | ж | "old pier #2" |
| 236 | m | So Boston | bulkhead | PD | | Paul's Lobster Co. |
| 238 | m | So Boston | wharf | PD | * | Boston fish pier finished 191 b |
| 240 | m | Boston | wharf | Ω | | pier #7 Boston Naval shipyd |
| 242 | . | Boston | wharf | Ω | | Pier #4 |

APPENDIX II

Cultural Resources in Impact Area

| Comments | Harbor bldg.near Sheraton | Atlantic Park Corporation | Russian wharf sacrifice to Congress St. bridge in late 19th century | | possibly bridge fender for Washington St. (cf.226) | | | | | possibly part of Washington St bridge fender |
|--|---------------------------|---------------------------|---|-----------------------------|---|---------------------------------|----------------------------|----------------------------------|--------|---|
| Sensitive Area-letter Structure* | უ | ပ | | | | | | | | |
| Condition D=dilap PD=part dilap | D | PD | PD | Д | Q | PD | Q | Q | æ | Д |
| Type of Structure | wharf | wharf | bridge fender system Congress St. | bridge fender Summer St. | wharf | fender system Dorchester Ave | bridge fender B & A RR. | fender system Broadway bridge | wharf | wherf |
| Town/Island | Boston | Beston | Boston | Boston | Boston | Boston | Boston | Boston | Boston | So Boston |
| Map # | 3 | т | м | т | က | м | ٣ | m | Ж | e E |
| Str.# | 217 | 218 | 219 | 220 | 221 | 222 | 223 | 755 | 225 | 226 |

APPENDIX II

Cultural Resources in Impact Area

| Comments | B&MRR. | | MBTA | Chas. R. Warehouse wharf | now 1-2-3 car wash | U.S.E.D. Wharf | police dept. | possibly North End Park | U.S. Coast Guard pier 3 previous location of Constitution wharf | U.S. Appraiser stones wharf possible location-Otis Wharf | previously City of Boston dumping wharf |
|---|-----------|-----------|--------|--------------------------|--------------------|----------------|--------------|-------------------------|---|--|---|
| Sensitive Area-letter Structure * | | | | | ſz, | ĵz, | ſz. | (±, | ſz. | ტ | O |
| Condition D=dilap PD=part dilap | PD | Ω | Œ | PD | Q | G. | PD | A | ۵a | PD | D |
| Type of Structure | RR bridge | wharf | wharf | wharf | wharf | wharf | wharf | wharf | wharf | wharf | wharf |
| Town/Island | Boston | Cambridge | Boston | Boston | Boston | Boston | Boston | Boston | Boston | Boston | Boston |
| Map # | 3 | e | ĸ | m | 8 | ٣ | m | e | ٣ | т | м |
| Str.# | 203 | 204 | 205 | 206 | 207 | 208 | 209 | 210 | 213 | 214 | 216 |

Appendix 5

APPENDIX II

Cultural Resources in Impact Area

| Comments | | | Old U.S. Naval Air | | | | ½ mi. from hospital | | Quincy Adams yacht yard est 1903 In 50's got Navy contract to make destroyers | | Duane Wrecking Co. near prehistoric site (cf. MHC files) | Quincy Oil Co., plant #4 |
|--|--------|----------|--------------------|--------|--------|-------------|----------------------------|------------------------|---|--------|--|--------------------------|
| Sensitive Area-letter Structure* | | | | | | * | * | * | * | | * | _ |
| Condition D=dilap PD=part dilap | D | PD CA | Q | Q | Q | PD | Д | Q | Q | Q | Q | e A |
| Type of Structure | wharf | wharf | bulkhead | wharf | wharf | wharf | wharf | wharf | wharf & dry dock | bridge | wharf | wharf |
| Town/Island | Boston | Boston | Quincy | Quincy | Quincy | 7 7 8 | Long Island) Boston Lg Isl | Boston Moon Head wharf | Quincy | Quincy | Quincy | Quincy |
| Map # | 10 | 10 | 10 | CI | 17 | <u>-</u> | ~ | 11 | 15 | 15 | 18 | 18 |
| Str. # | 293 | 767 | 596 | 297 | 568 | 300 | 301 | 302 | 309 | 312 | 313 | 315 |

APPENDIX II

Cultural Resources in Impact Area

| | Sensitive Area-letter Structure * | Quincy Oil Co. | Old Lincoln Oil Co. | | | | K possible original area of | K Kore niver only a subtile co. | M | Ж | Ж | × | | |
|---|---------------------------------------|----------------|---------------------|--------|----------|----------|-----------------------------|---------------------------------|------------------------------|----------|-----------------|-----------|----------|-----------|
| | Condition D=dilap PD=part dilap | D | Д | Д | Д | А | Q | Q | Ω | Q | Q | Q | Ω | ¢ |
| | Type of Structure | wharf | wharf | wharf | bulkhead | bulkhead | marine railway | marine railway | marine railway and cradle | bulkhead | temporary wharf | bulkhead | piles | 20114 |
| 1 | Town/Island | Quincy | Quincy | Quincy | Quincy | Quincy | Quincy | Quincy | Qui ncy | Quincy | Braintree | Braintree | Weymouth | Usermonth |
| | Map # | 1.8 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | ă, |
| | Str.# | 317 | 319 | 322 | 327 | 329 | 330 | 331 | 332 | 336 | 341 | 342 | 346 | 350 |

Appendix 5

APPENDIX II

Cultural Resources in Impact Area

| Comments | N. Weymouth Marine | | | | Old Bethlehem shipyard | | | Snug Harbor Boat Yard | Hingham shipyard WWII | | | |
|---------------------------------------|----------------------------|----------|----------------------------|----------|----------------------------------|----------|----------|---------------------------|-----------------------|---------|----------|----------|
| Sensitive Area-letter Structure* | | | | | * | | | | | | | * |
| Condition D=dilap PD=part dilap | PD | Q | Д | Q | Q | _ | Д | D | Д | £ | æ | 6 |
| Type of Structure | boat storage and repair | bulkhead | wharf, piers and floats | píles | granite quay and fender piles | pier | dock | marina and boat yard | shipways | pier | bulkhead | bulkhead |
| Town/Island | Weymouth | Weymouth | Weymouth | Weymouth | Weymouth | Weymouth | Weymouth | Hingham | Hingham | Hingham | Hingham | Hingham |
| Map # | 18 | 18 | 18 | 18 | 19 | 19 | 19 | 19 | 19 | 19 | 16 | 50 |
| Str. # | 361 | 365 | 370 | 371 | 384 | 387 | 397 | η - η- / 0η | 415-423 | 727 | 427 | 777 |

これに こうしゅうしょう とうかんしょう かんかん かんしょう かんしゅうしゅうしゅう

AFFENDIX II

Cultural Resources in Impact Area

Appendix 5

APPENDIX II

Cultural Resources in Impact Area

| Comments | Waveland Marina | | | | Ho Is., Nat'l Guard | | | *** | evoluteing formy ticket | & loading office | | | possibly associated with 1900 Hospital |
|---|---|-------|-------|-------|---------------------|-------|-------|------|-------------------------|------------------|--------------|-------------------------|--|
| Sensitive Area-letter Structure * | | | | | | | | | * | | * | | * |
| Condition D=dilap PD=part dilap | Q | Q | Q | . Д | 25 | Q | Ω | Q | Q | | Œ | D | Q |
| Type of Structure | timber breakwater and mooring piles | wharf | wharf | wharf | wharf | groin | wharf | pier | wharf | | wharf | piles | wharf |
| Town/Island | Hul 1 | Hull | Hull | Hull | Hull | Hull | Hull | Hull | Hull | | Hull | Weymouth | Hingham |
| Map # | 13 | 13 | 13 | 13 | 12 | 12 | 13 | 7.5 | 12 | | 12 | 16 | 16 |
| Str. # | 26ti | 495 | 503 | 505 | 905 | 507 | 509 | 51.1 | 512 | | Peddocks - 1 | openo 10 10 10 | x Bumpkin - 1 |

APPENDIX II

Cultural Resources in Impact Area

| | Comments | | | | | | | | | | this structure is near a known prehistoric site cf. MHC files | | | |
|-----------|---------------------------------------|-------------|---------------|---------------|---------------|---------------|---------------|---------------|-----------------------|----------|---|--------------|--------------|--|
| | Area-letter Structure" | | * | * | * | * | * | * | | | * | * | * | |
| 0 3 5 4 5 | condition d=dilap PD=part dilap | Q | Q | Q | Ω | Q | Q | Q | A | Q | Q | A | Ω | |
| | Type of Structure | wharf | wharf | wharf | wharf | wharf | wharf | wherf | wharf | wherf | wherf | retaining | pilings | |
| | Town/Island | Boston | Boston | Boston | Boston | Boston | Boston | Poston | Boston | Boston | Boston | Boston | Boston | |
| | Map # | 8 | 12 | य | 2 | ~ | | <u></u> | 6 0 | ∞ | • | 01 | 9 | |
| | Str # | Gallops - 2 | Bainsford - 1 | Rainsford - 2 | Spectacle - 1 | Spectacle - 2 | Spectacle - 3 | Spectacle - h | Great Brewster - 1 | Calf - 1 | Thompson - 3 | Thompson - 4 | Thompson - 5 | |

Appendix 5

APPENDIX III EIS CHECKLIST

- Historical and archaeological features.

 Historical and archaeological features include the dilapidated and partially dilapidated remains of such waterfront structures as piers, wharves, bulkheads, bridge fenders, cat-walks, dry docks and marine railways.
- 3a Conflicts with terms of existing land use plans (Federal, State or Local)

 No conflict between land use plans (in this case some kind of historical preservation plan) and the proposed action has been uncovered.

 (3b therefore not applicable)
- Remedial, projective and mitigation measures that would be taken.

 The probable impact of this project to historical structures would be either their removal or repair. Mitigation alternatives to alleviate adverse impact include: (1) preservation and restoration and/or (2) detailed reconstruction on paper; and/or (3) recommendations, commemorative in nature (e.g., placing of historical markers or information posts).
- Nature and extent of adverse effects.

 Unavoidable effects of this proposed action would be the removal of some of the structures representing the maritime history of Boston Harbor and thus ridding the area of its "integrity" of location, design and setting.
- Resources affected, organisms affected.

 Dilapidated structures and partially disapidated structures in the tide water region of Boston Harbor will be affected. No historical organisms will be affected. (sic.)
- 7a <u>Cumulative and long term impacts</u>.

 The removal of structures, would constitute an irreversbile commitment of cultural resources.
- 8a <u>Irrevocable uses of resources</u>.

 Historic properties are non-renewable resources. Their removal constitutes an irreversible commitment.
- Point out environmental issues discussed.

 This report addresses the potential impact of the proposed project to historic properties in the project area. The environmental issues discussed are therefore limited to America's cultural environment and to recognizing the importance of significant historic properties to the broad patterns of American life.

BOSTON HARBOR, MASSACHUSETTS FEASIBILITY REPORT FOR DEBRIS REMOVAL

Legal Section

PPENDIX



DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
WALTHAM, MASS.

DECEMBER 1979 (REVISED MAY 1980)

BOSTON HARBOR DEBRIS STUDY LEGAL SECTION

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APPENDIX 6

PREFACE

The most prevalent sources of floating debris in Boston Harbor originate from dilapidated waterfront structures, abandoned vessels and dumping and disposal operations. In addition to being obstructive and injurious to navigation, these sources are aesthetically unpleasant and, combined with the discharge of municipal and industrial wastes, are the contributing factor to the degradation of water quality in the harbor. Since the primary interest of this report is in solid floating debris and its effect on navigation, no reference will be made to legislation concerning liquid pollution and water quality standards except as the same may effect navigation.

The U. S. Army Corps of Engineers is the primary Federal agency with jurisdiction over the sources of debris. Acting in the interests of navigation, under the Rivers and Harbors Act of 1899, the Corps of Engineers has jurisdiction over any obstruction to the navigable capacity of any of the waters of the United States, any structure extending into, onto or over the navigable waters, and also over the discharge or deposit into navigable waters of any refuse matter other than that flowing in a liquid state from streets and sewers.

The Department of Environmental Quality Engineering is the primary State agency with jurisdiction, having been empowered with the general care and supervision of the harbors and tidewaters. Supervisory powers are exercised over dumping and disposal operations in the harbor and also control over any buildings projecting into the harbor, the filling of tidelands, and the abandonment and removal of wrecks, hulks and shore structures.

A general survey of the twelve cities and towns bordering on Boston Harbor, regarding the existence of local laws or ordinances pertaining to sources of floating debris, revealed the non-existence of any significant legislation, the main reason being that the lands, flats, shores and rights in tidal waters are under the jurisdiction of the State.

The body of the report has been arranged in sections corresponding to the prevalent sources of debris. A discussion of the problem involved is followed by a historical background of Federal, State and local laws, regulations and decisions. Recommendations and suggestions for corrective legislation are also made to alleviate the problems involved.

WATERFRONT STRUCTURES

The Problem

Any structure built over the tidelands is subject to a conflict between the property rights of the riparian owner, the right of the State or local government to regulate such property in the interest of the Commonwealth, and the superior right of the Federal government over the tidelands in the interest of navigation.

A riparian proprietor has the right of access to the navigable part of the stream in front of his land and to construct a wharf or pier projecting into the stream for his own use or the use of others, subject to such general rules and regulations as the legislature may prescribe for the protection of the public. Nebber v. Board of Harbor Commissioners, 85 U.S. 57. The question as to the extent and nature of the rights of riparian owners upon navigable waters is one to be decided by the courts of the State as a matter of local law, subject to the right of Congress to regulate public navigation and commerce. St. Anthony Falls Water Power Co. v. Board of Water Commissioners of the City of St. Paul, Minn. 168 U.S. 349.

While the maintenance, use and operation of wharves, piers and docks could be subject to Federal regulations under its power over navigation and commerce, there has been a reluctance to exercise this control in the removal of obstructions which do not directly affect navigation. As a practical matter, most of the existing deteriorated and dilapidated structures are built on the tidelands, inside of harbor lines, where they would have little direct effect on navigation. In the absence of Federal regulations which specifically encompass the subject, the position has been taken that such matters are of local concern, and are subject to State regulations, either directly by the State or through its municipalities or other governmental agencies.

The State government, under its regulatory power over the tidelands, has enacted legislation dealing with the licensing of waterfront structures but none specifically related to dilapidated and deteriorated structures.

MATERFRONT STRUCTURES

Federal Laws and Regulations

Section 10 of the Rivers and Harbors Act of 1899, 33 U.S.C.A. 403, states that it is unlawful to create any obstruction not affirmatively authorized by Congress to the navigable capacity of any of the waters of the United States. The building or commencement of building of any wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty or other structure in any navigable water of the United States, outside established harbor lines, or where no harbor lines have been established, is also unlawful except on plans recommended by the Chief of Engineers and authorized by the Secretary.

Section 11 of the Rivers and Harbors Act, 33 U.S.C.A. 404, provides for the Secretary of the Army, where he deems it essential to the preservation and protection of harbors, to cause harbor lines to be established, beyond which no piers, wharves, bulkheads or other works may be extended or deposits rade, except under such regulations as he may prescribe.

Under Section 12, 33 U.S.C.A. 406 of the Rivers and Harbors Act, it is a misdemeanor to violate Sections 10, 11, supra, and on conviction thereof provides for punishment by fines and/or imprisonment. Section 12 also provides that the removal of any structure erected in violation of Sections 10 and 11 may be enforced by injunction.

Title 33 of the Code of Federal Regulations has provided for the issuance of permits by the Department of the Army for the construction of structures in or over navigable waters (33 CFR 322) and also for the revocation of these permits (33 CFR 325) for failure on the part of the permittee to comply with any conditions therein, or where the structures or other work constitutes an unreasonable obstruction to navigation or to operations of the United States in the interests of navigation or flood control.

Prior to 1970 riparian owners could erect open pile structures, or undertake solid fill construction shoreward of established harbor lines without obtaining a permit in accordance with Section 10 of the Rivers and Harbors Act. This long standing policy created concern with the enactment of various pieces of environmental legislation noted below that contained a clear expression of the Congress' concern that the public interest may not have received sufficient scrutiny. To alleviate this concern and to insure that the public interest would be considered and protected, it was declared that all existing and future harbor lines were to be guidelines only with respect to navigation interests. It is now the policy of the Corps of Engineers to require the issuance of a permit pursuant to Section 10 in every instance of work commenced shoreward of any existing or future harbor line. See 33 CFR 328 generally on this subject.

Although the Corps of Engineers has certain police powers under the Rivers and Harbors Act of 1899 and other laws for the protection and preservation of navigable waters, it has been long standing policy to secure compliance with the provisions short of legal proceedings. Prosecution is recommended in all cases of willful or intentional violations and all cases in which the parties responsible refuse or neglect to remove the unlawful structure or deposit or to make good the damages suffered. The exact procedures to be followed in the event activities are performed in the navigable waters without proper authorization are set out in 33 CFR 326.

It should also be noted that the Congress has prohibited the expenditure of appropriated money for dredging improvements inside of established harbor lines, 33 U.S.C.A. Sec. 628. It is against the rules of the Department of the Army to expend Federal funds for the removal of wrecks or other obstructions shoreward of established harbor lines. 33 CFR 328. An Act or Resolution of the Congress authorizing clean-up work shoreward of any harbor lines would supersede the preceding policy statement.

Authority to fund harbor clean-up programs is contained in Section 202 of the Mater Resources Development Act of 1976, Public Law 94-587, 90 Stat. 2917. Section 202(a) of this Act contains the Congressional finding that drift and debris on or in privately maintained commercial boat harbors, and the land and water areas immediately adjacent thereto, threaten navigational safety, public health, recreation, and the harborfront environment. In response to this problem Congress assigned responsibility for developing projects for the collection and removal of drift and debris from publicly maintained commercial boat harbors to the Corps of Engineers \sqrt{S} ection 202(b)(1) \sqrt{I} . The Federal share of the costs of any project developed pursuant to this Act was set at two-thirds of the project cost except as outlined below. It is the responsibility of non-Federal interests to recover the full cost of drift or debris removal from any identified owner of piers or other structures or to require the repair of these sources so that they no longer create a potential source of drift or debris.

WATERFRONT STRUCTURES

Federal Decisions

The limits of Federal authority over navigable waters were outlined in the United States v. Chicago, Milwaukee, St. Paul-Pacific Railroad Co., 312 U.S. 592, where the Court held that the dominant power of the Federal Government over navigable waters extends to the entire "bed" of the stream, which includes the lands below ordinary high water mark and the exercise of the power within these limits is not an invasion of private "property right" in such lands for which the United States must make compensation, since the damage sustained results not from a taking of the riparian owners' property in the stream bed, but from the lawful exercise of a power to which the property has always been subject.

The Federal Government has extended its control shoreward of established harbor lines to include all waters in the Federal admiralty jurisdiction (33 CFR 322). However, this change has no effect on structures existing or completed under previously existing harbor line authority as no permit is required for these structures. The net effect of the change in the harbor line regulation is that any old or dilapidated structures do not require a permit in order to remain in the navigable waters.

The application of Federal power over structures was stated in <u>United States v. Appalachian Electric Power Co.</u>, 311 U.S. 377, where it was held that the United States has plenary power to exclude structures from navigable waters and dominion over flowage and water power inherent therein, and may make the erection or maintenance of a structure in a navigable water dependent upon a license. So, consequently, any structure in the bed of a navigable wateray is put there at the risk that it could be taken by the Federal Government at any time without compensation in the interest of navigation, provided that the taking was not arbitrary. <u>United States v. Martin</u>, 177 F2d 733.

A riparian owner who had erected a wharf on the waterfront which conformed to the harbor lines as established by the State and adopted by the Federal Government was not entitled to any compensation when Congress, in the exercise of its power over commerce, established a new harbor line which required the demolition of a portion of such wharf. Greenleaf-Johnson Lumber Co. v. Garrison, 237 U.S. 251.

In <u>United States v. Commodore Park</u>, 143 F2d 720 at 725, the statement of the Supreme Court that the navigable waters of the United States are the "public property of the nation" was not intended to convey the idea that the United States has the absolute ownership of beds of navigable streams and may make any use of them that it sees fit. The right of the United States in the navigable waters within the several states is limited to control thereof for the purpose of navigation. United States v. River Rouge Co. 269 U.S. 411 at 419.

DILAPIDATED WATERFRONT STRUCTURES

State and Local Statutes and Decisions

In 1970 the Commonwealth enacted a statute, M.G.L.A. c. 91, Sec. 49B, which provides generally for the removal of dilapidated wharves or piers. This section is quoted below:

"Sec. 49B. Removal of dilapidated wharves, or piers; notice revocation of license; liability for cost; lien

The department shall remove or cause to be removed any wharf or pier located in the tide waters or tide lands of the commonwealth, which in the opinion of the department is dilapidated, unsafe, a menace to navigation or is a source of floating debris that is, or is liable to become, a menace to navigation.

If the owner of record of such wharf or pier is known to the department the department shall give such owner written notice to remove such wharf or pier within a reasonable time therein specified. Such notice shall be deemed sufficient if delivered to the owner in hand, if left at his usual place of business or abode or if sent by certified mail to his last known post office address.

If such wharf or pier is not removed in a manner satisfactory to the department within the time specified in such notice, the department may revoke forthwith any license or authority applicable to such wharf or pier issued or granted under the provisions of sections fourteen through eighteen, inclusive. If such wharf or pier is not removed in a manner satisfactory to the department within the time specified in such notice, or if the department has been unable to make sufficient service of such notice, the department shall remove, complete that removal or cause to be removed such wharf

or pier. The owner of such wharf or pier shall be liable to the commonwealth for the costs and expenses for such removals, and the sum so received shall be credited to the Harbors and Inland Naters Maintenance Fund established by section ten B. If the owner fails to reimburse the commonwealth within thirty days of such removal, the department, in the name of the commonwealth, may take a lien on any real property held by the owner of said wharf or pier. The commonwealth shall place on record in the proper registry of deeds or registry district of the land court, as the case may be, an instrument in writing and under seal executed in common form and acknowledged in the same manner as deeds for real property creating a lien upon such real estate for the amount of the costs and expenses of such removal. The instrument shall be recorded or registered without fee. Such lien shall be enforceable by a petition or bill in equity filed by the attorney general in the superior court or in the probate court for the county wherein the real estate is situated. The subpoena shall be returnable not more than thirty days subsequent to the entry of the bill and shall contain a brief description of the property, sufficient to identify it, and a statement of the amount alleged to be due. Upon reimbursement for the amount due under the terms of such lien, the attorney general shall execute and deliver a satisfaction thereof, and, upon its being recorded or registered, the lien shall be dissolved as of the date of such recordation or registration.

The department may make application to the government of the United States for reimbursement of any amounts expended under any provision of this section. Added by St. 1970, c. 878, sec. 4, Amended by St. 1974, c. 808."

The effect of this section is to allow the Department of EQE to remove offending structures when the Legislature appropriates monies for this purpose.

By common law of Massachusetts, the grantee of land bounding on navigable waters where the tide ebbs and flows, acquires a legal right in the soil of the shore between the high and low water mark and not a mere gratuitous license. This property is also subject to the restriction that the State, to prevent encroachment in the harbors, may establish lines and limit this power of the owner over his property. The City of Boston v. Lecraw, 58 U.S. 426.

These restrictive powers of the State are covered in Section 10 of Chapter 91 of the General Laws of Massachusetts, whereby the Commonwealth's Department of Environmental Quality Engineering through its Division of Waterways shall have general care and supervisory power over the harbors and tidewaters in order to prevent and remove unauthorized encroachments which may interfere with the navigation, injure their channels, cause a reduction in tidewaters, and to protect and develop the rights and property of the Commonwealth in such waters, flats, and lands.

Under Section 14 of Chapter 91, the Department of Environmental Quality Engineering may license and prescribe the terms for the construction of a wharf, pier, dam, sea wall, road, bridge or other structure; and under Sections 15 and 16 of Chapter 91, this authority or license granted since the year eighteen hundred and sixty-eight or hereafter could be revoked at the discretion of the General Court and would expire in five years except as to valuable structures or would be subject to forfeiture for non-use for an unreasonable time without reasonable cause. However, some difficulty would be encountered in revoking the license for a structure where the license was granted prior to eighteen hundred and sixty-eight.

Section 23 of Chapter 91 provides that every erection made and all work done within tidewaters, not authorized by the General Court or by the Department of Environmental Quality Engineering, or done in a manner not sanctioned by the Department, if a license is required shall be considered a public nuisance. The Attorney General or the District Attorneys within their respective districts shall, at the request of the Department, institute proceedings to enjoin or abate such nuisance.

Included in the powers of the Attorney General under <u>Section 7 of Chapter 12</u> of Massachusetts General Laws, he may, if in his judgment the public interest so requires, prosecute informations or other processes against persons who intrude on the land, rights of property of the Commonwealth, or commit or erect a nuisance thereon.

Informations in equity in the name of the Attorney General have been sustained for public nuisances which affect or endanger the public safety or convenience, and require immediate judicial interposition, like obstructions on navigable waters. Attorney General v. Boston Wharf Co. 78 Mass. 553.

DILAPIDATED WATERFRONT STRUCTURES

Recommendations and Corrective Legislation

As a consequence of the revision of the regulation governing harbor lines, the United States now controls the erection of any new structures shoreward of established harbor lines. Individual permits are required for all activities in the navigable waters, which includes all of Boston Harbor. The exercise of State jurisdiction over activities in the waters of Boston Harbor is not pre-empted by the change in the Federal regulation; however, any permit required or issued by the State may not be inconsistent with the terms of the Federal one.

The enactment of Sec. 49B within C. 91 of the General Laws of Massachusetts has given the Department of EQE a tool with which to eliminate the existence of dilapidated shorefront structures. This piece of legislation is similar to a statute enforced within the Port of New York which empowers the Commissioner of Marine and Aviation of the City of New York to repair private wharf property and to remove abandoned wharf structures. The Administrative Code of the City of New York, Section 704c-4.0 and 5.0 provides that the expenses incurred for repairs or removal of the wharf structures shall be recoverable from the owner and shall be a lien upon the property.

There has not been any case reported interpreting Sec. 49B and it is very unlikely that any action has been initiated pursuant to its terms. The General Court has not appropriated any monies to the Department to enforce this section. Without funding by the General Court it is not possible for this statute to have a beneficial effect on the elimination of debris sources in Boston Harbor.

WRECKED AND ABANDONED VESSELS

The Problem

Under general maritime law, the owner of a wrecked or sunken vessel has the right to abandon the wreck and be no longer responsible for its removal. That law has not been changed by the Rivers and Harbors Act of 1899 which fully recognizes the owner's right of abandonment. As a result, the duty of clearing wrecked and abandoned vessels has been imposed on the Federal governmen. However, these duties have been restricted to navigable channels and in practice are not extended beyond channel lines and into the tidewaters, even though such waters are part of the navigable waters. Title 33 of the Code of Federal Regulations, Section 209.190, states:

"Usually removal by the United States is not undertaken if the obstruction simply affects the approaches to private wharves and is without influence upon general navigation."

When the United States has acted in removing a sunken vessel, the question of reimbursement from the owner arises. In many cases the salvage value of the vessel would be insufficient to cover the removal cost, especially where the vessels were intentionally sunk. Therefore, a distinction in the owner's liability must be made between vessels intentionally or negligently sunk and those sunk by accident; also there is the question of proof of negligence or intent.

Local legislation in turn suffers from the owner's right to abandonment since any restriction by the local government would be overruled by the Federal Admiralty Courts.

WRECKED AND ABANDONED VESSELS

Federal Laws and Regulations

Duties as to the removal of wrecked and abandoned vessels have been imposed by the Federal Wreck Statute, (33 U.S.C.A. Sections 409, 414, 415) which relates to the removal of a vessel, raft or other craft wrecked and sunk in a navigable channel.

Section 409 makes it unlawful to voluntarily or carelessly sink, or permit or cause to be sunk, any craft in navigable channels so as to obstruct, impede or endanger navigation. It also imposes upon the owner of the sunken craft the duty of marking the wreck with a suitable marker. This Section further provides for the immediate removal of the sunken craft by the owner and his failure to remove it would be considered as an abandonment of such craft and subject the craft to removal by the United States.

Section 414 states that whenever a sunken vessel has been abandoned or has obstructed navigation for a period longer than thirty days, the sunken vessel shall be subject to be broken up, removed, sold, or otherwise disposed of by the Secretary of the Army at his discretion, without liability for any damage to the owners of the same and that any money received from the sale of such wreck, or from any contractor for the removal of wrecks shall be deposited into the Treasury of the United States.

The remedy provided in <u>Section 414</u> is to be exercised after the wreck has existed for a longer period than 30 days or the abandonment of such obstruction legally established in less time. <u>Section 415</u> provides for summary removal of a wreck in cases of emergency. Under emergency, in the case of any vessel, boat, watercraft, or raft, or similar obstruction, sinking or grounding, or being unnecessarily delayed in any navigable waters in such manner as to stop, seriously interfere with, or specially endanger navigation, the Secretary of the Army shall have the right to take immediate possession of such boat, vessel, or other water craft or raft, so far as to remove or to destroy

it and to clear the navigable waters. Section 415 also provides that the expense of removing the obstruction shall be a charge against the craft and its cargo. If the owner fails or refuses to reimburse the United States, then as under Section 414, the sunken craft or cargo could be sold limiting the maximum recovery to the proceeds of the sale.

Section 411 of Title 33 U.S.C.A. provides a penalty for the wrongful obstruction of navigable waters by making every person and every corporation that violates Section 409 quilty of a misdemeanor punishable by a fine of up to \$2500 and/or up to one year's imprisonment in the case of a natural person.

At this point it should be noted that under the preceding statutes the maximum liability of an owner of a sunken craft would be limited to an in rem charge against the craft and its cargo and the owner's possible criminal liability of a misdemeanor under Section 411. The statutes are silent, however, regarding any personal liability on the part of the owner for the cost of removal where the craft was deliberately or negligently sunk.

Under Title 33 of the Code of Federal Regulations, <u>Section 209.170</u>, a distinction was made between the liability of an owner of a vessel sunk without his fault and that of an owner of a vessel, negligently or willfully sunk. This regulation provides as follows:

"By the maritime law the owner of a vessel which is sunk without fault on his part may abandon the wreck in which case he cannot be held responsible for removing it even though it obstructs navigation. That law has not been changed by sections 15, 19 and 20 of the Rivers and Harbors Act of March 3, 1899 (30 Stat. 1152, 1154; 33 U.S.C. 409, 414, 415), which fully recognize the owner's right of abandonment. However, a person who willfully or negligently permits a vessel to sink in navigable waters of the United States may not relieve himself from all liability by merely abandoning the wreck. He may be found guilty of a misdemeanor and punished by a fine, imprisonment, or both,

and in addition may have his license revoked or suspended. He may also be compelled to remove the wreck as a public nuisance or to pay for its removal."

WRECKED AND ABANDONED VESSELS

Federal Decisions

Of the main source of hazardous debris, the one receiving most consideration by the Federal Courts in recent years relates to wrecked and abandoned vessels. Some of the more pertinent recent decisions are discussed below in chronological order.

In the United States v. Zubik, 295 F2d 53, decided in 1961, The U. S. Court of Appeals, Third Circuit affirmed a lower court decision granting the owner's motion to dismiss a complaint by the United States to recover the cost of removing a wrecked vessel obstructing a navigable river. According to the facts, the owner had negligently sunk two towboats in the Allegheny River in such a manner as to obstruct navigation. Five years after the sinkings and after Zubik had failed to comply with its demand to remove the vessels, the United States removed the wreckage. The Government then brought suit to recover the \$3,273.83 incurred in removal cost alleging that the wrecks were valueless. The Court held that the United States could not recover the expenses of removal in the absence of an expressed or implied provision. The right accorded to the United States by the Rivers and Harbors Act to remove wrecks in navigable waters is in the nature of an in rem right against the vessel and not in personam right against the owner.

In 1963, the Ninth Circuit, United States Court of Appeals, in the case of <u>United States v. Bethlehem Steel Corp.</u>, 319 F2d 512, again affirmed a lower court decision dismissing the claim of the United States for the costs (\$336,000, after salvage) of removing a sunken ship from a navigable channel. The Court of Appeals held that the ship owner which by its alleged negligence caused the ship to sink in the channel where it would, until removed, constitute an obstruction to navigation was not liable under either the common law or the Rivers and Harbors Act to the United States for cost incurred by the United States in removing the ship from the channel.

The Court then went on to hold that the regulations (33 Code of Federal Regulations, Section 209.170) promulgated on behalf of the Corps of Engineers, requiring an owner to pay for removal of a vessel which he has willfully or negligently permitted to sink in navigable waters of the United States, is not authorized by the Rivers and Harbors Act of 1899. The last sentence of this regulation, "He may also be compelled to remove the wreck as a public nuisance or to pay for its removal" would solve the problem. But what it said was contrary to judicial decisions at the time the regulation was issued, and was, if we are correct in our estimate of what the statutes mean, an unauthorized effort to administratively improve the statute.

In 1964 an action was brought in the United States District Court, Maryland, to determine again the liability of an owner whose vessel had been intentionally grounded in navigable waters. In this case, <u>United States v. Bethlehem Steel Company</u> and <u>Moran Towing and Transportation Company</u>, 235 F. Supp. 569, the vessel involved was a floating drydock. The Court held for the United States on the grounds that this drydock was not a "vessel or other craft" within the statute (33 U.S.C.A. 409, 414, 415) permitting an owner to abandon his sunken vessel and limit his liability for the cost of removal to liability in rem against the vessel and the cargo, but that this case was controlled by Sections 403 and 406 (unauthorized obstructions to navigation). The Court then went on to state:

"If it were necessary for the decision of this case, the Court would hold that under Section 409 a distinction should be made between vessels which are deliberately or voluntarily sunk on the one hand and those which are accidently or negligently sunk on the other. As stated above, the statutes and the weight of authority indicate that Congress intended to protect the owners of vessels from personal liability for the expense of removing the wreck after they have had the misfortune of losing their boat or their ship; that consideration does not apply to an owner who voluntarily scuttles his vessel. If Section 409 should be construed to remove all vessels and other craft from the ambit of Section 403, Section 409 itself, when

considered in the light of its purpose, should not be construed as absolving from in personam liability an owner who voluntarily scuttles his vessel."

In February of 1967, the United States Circuit Court of Appeals, Fourth Circuit (374 F2d 656) reversed the above decision of the District Court by holding that a floating drydock was a vessel within the meaning of the Ureck Act so as to make available to the owner the statutory right of abandonment.

The Supreme Court (389 U.S. 575) granted the petition for a writ of certiorari in January, 1968. The judgments of the Court of Appeals, Fourth Circuit, were vacated and the cause was remanded to that Court for further proceedings in light of a recent Supreme Court decision in <u>Hyandotte Transportation Co.v. United States</u>, 389 U.S. 191.

In <u>Myandotte Transportation Co. v. United States</u>, decided December 1967, two cases, <u>United States v. Cargill and United States v. Myandotte Transportation Co.</u>, involved related issues and were consolidated by the District Court for Eastern Louisiana.

The brief facts of the Cargill libel alleges that a supertanker heading up the Mississippi for Baton Rouge collided with two barges owned by the petitioner and sunk them. The Government was notified immediately and a few days later was served with notice that the barges were being abandoned. The United States refused to accept abandonment or to assume responsibility of removal, charging that negligence in the equipping, manning and mooring of the barges had caused the sinking.

In the Myandotte libel, a barge loaded with 2,200,000 pounds of liquid chlorine sank while being pushed in the Mississippi. The owner of the wreck made some attempt to raise it but was unsuccessful. He then informed the Army Corps of Engineers that further attempts would be unsuccessful and that he was abandoning the vessel. The Covernment feared that if the chlorine escaped in the form of lethal chlorine gas it might cause a large number of casualties. After a demand by the Government and refusal by the owner, the United States successfully removed the barge at a cost of \$3,081,000. The Government

demanded reimbursement for its expenses and brought suit in rem against the barge and its cargo, and in personam against the owner of the barge charging negligence. The suits were dismissed in District Court and then appealed to the United States Court of Appeals for the Fifth Circuit, 367 F2d 971. The Circuit Court held that it is only innocent owners who may abandon a sunken ship which obstructs navigation; owners of negligently sunken barges obstructing navigation can not abandon them with impunity. Further, that the Government can compel negligent parties to remove the sunken vessels or pay the cost of removal.

Certiorari was granted by the Supreme Court, 389 U.S. 191, where finally it was held that in view of the inadequacy of the criminal penalties in the Rivers and Harbors Act respecting violation of the section rendering it unlawful to carelessly sink a vessel in navigable channel, the United States may seek an order that the negligent party is responsible for a wrong done to maritime commerce by a statutory violation and may maintain a civil action against the parties responsible for the negligent sinking to recover the Government's expenses in removing the negligently sunk vessel.

WRECKED AND ABANDONED VESSELS

State and Local Statutes and Decisions

Under the supervisory and regulatory powers of the State, legislation has been enacted to fill the void left by the Federal government in restricting its removal duties to navigable channels.

Section 39 of Chapter 91 of the General Laws of Massachusetts provides for the removal of wrecked, sunken or abandoned vessels, and unauthorized structures in the tidewaters of the Commonwealth. "If the Department of Environmental Quality Engineering deems the vessel or structure is or is liable to cause or become an obstruction to the safe and convenient navigation or other lawful use of such waters, the Department shall remove it or cause it to be removed." Under Section 40 of Chapter 91, the Department is authorized to give notice to the owner causing the obstruction and if the obstruction is not removed then Section 41 provides for removal after notice by the Department of Environmental Quality Engineering; if the cost and expenses of removal are not paid by the owner or other person liable therefor, they shall be paid by the Commonwealth.

Where the vessel is willfully or maliciously wrecked, sunk or abandoned, and removed by the Commonwealth, the owner shall be liable for the cost and expenses of such removal, or to repay the same when paid by the Commonwealth; and such costs and expenses may be recovered in an action of contract brought by the Department in the name of the Commonwealth against such owners. Section 42 of Chapter 91

It should be noted that the previous statute is silent reyarding negligent or accidental sinking of a vessel, thus avoiding a conflict with the general maritime law.

Before breaking up and disposing of any floating structure, the owner of any vessel, scow, lighter or similar floating structure lying within the limits of any harbor of the Commonwealth would first have to obtain a license. Section 46, Chapter 91. The penalty for violation is a fine of five to five hundred dollars. But before a license could be granted, the owner would have to file a bond, under Section 47, assuring that the work would be performed to the satisfaction of the Department of Environmental Quality Engineering.

Section 49 of Chapter 91 provides a fifty to five hundred dollar penalty for grounding or abandoning a floating structure within the limits of any harbor of the Commonwealth, or upon any property without permission, unless it is upon the property of the owner. There is an exemption to this section where, by reason of accident, emergency, errors of navigation, or in order to prevent loss of life or the sinking of a vessel, scow, etc., it has been grounded within the limits of any harbor or on any of the shores of the Commonwealth.

An interesting Massachusetts case, <u>Petition of Boat Demand</u>, <u>Inc.</u>, 174 F.Supp. 668, was decided in the United States District Court of Massachusetts in 1959.

The vessel owner had been found negligent in regard to an explosion and sinking of a fishing vessel at a private wharf, where it was later abandoned. The lessee of the wharf brought suit against the owner for the cost of removing the sunken hull of the vessel. In ruling that the owner's abandonment did not defeat the lessee's claim, the court recognized the principle that loss without fault on the owner's part is a prerequisite to the termination of liability by abandonment.

This 1959 decision was in line with the recently stated Supreme Court decision in Wyandotte Transportation Co. v. United States, 389 U.S. 191, decided in 1967.

WRECKED AND ABANDONED VESSELS

Recommendation and Corrective Legislation

The decision in <u>Wyandotte Transportation Co. v. United States</u> 389 U.S. 191, has settled the problem of in personam liability against the negligent party for costs of removal. However, many times it would be an extremely difficult or impossible task to prove negligence or willful intent in the sinking of a vessel; and as long as the right of an owner to abandon a wrecked or sunken vessel exists, this problem of proof will continue. The effect of this right created under maritime law upon the public and on local legislation was summed up by the Court of Special Sessions of the City of New York in the case of <u>People v. Anthony O'Boyle, Inc.</u>, 170 N.Y.S. 2d 884 (1958).

"This court recognizes that it is beyond its power to effectively apply and enforce the local law against this defendant. It is apparent that any restriction upon the right of abandonment by this court would be striken down by the Federal Admiralty courts wherein the right of the port city to protect its citizens from rat and pest infected nuisances and hazards in navigable waters has ever been subordinated to the monetary interests of the maritime entrepreneur by limiting his liability and responsibility for abandonments. But it is not beyond the power of this court to put to the Congress this question: Is it wise or just longer to permit this intolerable situation to be continued and to be duplicated throughout the navigable waters of this nation."

In view of the hardship caused, it is necessary that the owner's right to abandonment as recognized under 33 U.S.C.A. 409 be eliminated regardless of how the vessel was sunk and a new statute be enacted, providing that the owner of the vessel be personally responsible for its immediate removal. The form

APPENDIX 6

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of the proposed statute should resemble the "Canadian Navigable Waters Protection Act", Chapter 193 of the Revised Statutes of Canada (R.S. 1952 c. 140), as amended, the provisions of which are listed in the appendix of this report.

By elimination of this right to abandonment there no longer would be a concern with the vagueness in Section 409 relating to establishment procedures for abandonment.

Also under Section 409, Federal authority should be extended to all navigable waters instead of the present policy not to extend Federal funds for the removal of wrecks or other obstructions shoreward of established harbor lines. 33 CFR 209.155. In practice the Federal government could then exercise concurrent control with the State over the tidewaters where most of the abandoned vessels are located. This would provide more effective enforcement against violations and would extend Federal authority to the source of drift and debris and to those possible hazards which only a flood or a severe storm would carry into the navigable channels.

In addition to the fines and imprisonment provided under Section 411, the United States should possess the right to injunctive relief against the continuance of violations of Sections 407, 408 and 409. By possessing this right to enjoin, the Government could effectively compel removal by an owner who ties up or beaches a vessel in sinking condition where, due to its position, it would eventually become a hazard to navigation or a source of debris.

Chapter 91 of the Massachusetts General Laws provides sufficient authority for removal of wrecked and abandoned vessels by the State. Once the right to abandonment was eliminated on a Federal level, the State could follow in revising its statutes under Chapter 91 to extend personal liability for the expenses of removal upon the owners of sunken vessels regardless of how they were sunk and not just malicious and willful sinkings as presently stated under Section 42.

The \$500 maximum penalty for the unlawful breaking up of a vessel under Section 46A and for the grounding or sinking of a vessel within the harbor under Section 49 is low in comparison

to the resulting harm these acts could cause. The penalties should be raised in line with the \$2500 maximum provided by Federal statute. In addition, the right to injunctive relief by the State would also be included under both Sections 46A and 49 to prevent the occurrence of possible debris sources prior to their becoming injurious or obstructive to navigation.

DEBRIS DUMPED IN THE HARBOR AND ALONG THE SHORE

The Problem

The sources of debris due to dumping in the harbor are refuse dumped along the shore, shoreline demolition, refuse spilled during barging operations, and general refuse litter contributed by vessels. There is also evidence of the accumulation of debris from the Boston sewerage system which was constructed before the advent of the separate system of drainage and results in overflows into the harbor during rainfall.

However, Section 13 of the Rivers and Harbors Act, which pertains to deposit of refuse in navigable waters generally, has exempted the discharge of material flowing from streets and sewers passing therefrom in a liquid state. The discharge of those materials is specifically dealt with under the general desire for clean water through the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq.

In substance, Section 13 also states that it shall not be lawful to deposit, or cause, suffer, or procure to be deposited material of any kind on the banks of navigable waters, where the same shall be liable to be washed into the waters and impede or obstruct navigation. The statutory language needs some clarification here since it raises the question of whether a riparian owner could be a violator for permitting objectionable material, which was washed up on his bank to remain or whether there must be an active act on the part of the violator.

The enforcement of dumping violations along the shore would most effectively be carried out under local jurisdiction utilizing existing State legislation so that the problems created by the Federal statutory language should not effect local enforcement.

DEBRIS DUMPED IN THE HARBOR AND ALONG THE SHORE

Federal Laws and Regulations

In the past, Federal legislation regulating the use of navigable waters as depositories of debris has been confined to preventing impediments to navigation but with the passage of the Federal Mater Pollution Control Act Amendments of 1972 that concern has been expanded to include the general maritime environment. 33 U.S.C.A. Sec. 1251 et seq.

In substance, Section 13 of the Rivers and Harbors Act, 33 U.S.C.A. 407, provides that it is unlawful to discharge of deposit into the navigable waters of the United States any refuse matter of any kind, other than that flowing from the streets and sewers and passing therefrom in liquid state, or to deposit, cause, suffer or procure to be deposited material of any kind in any place on the bank of any navigable water, or tributary thereof, which may be washed into the navigable water, either by ordinary or high tides, or by storms or floods, or otherwise, whereby navigation shall or may be impeded or obstructed.

Section 13 also empowers the Secretary of the Army to permit the deposit of any material in navigable waters whenever in the judgment of the Chief of Engineers anchorage and navigation will not be injured thereby.

Protection of navigation was again made the limited objective of Section 419, Title 33, U.S.C.A., which empowered the Secretary of the Army to prescribe regulations governing the transportation and dumping into navigable waters of dredgings, earth, garbage or other refuse material, whenever in his judgment such regulations are required in the interest of navigation.

Violation of the above statutes (407 and 419, Title 33, U.S.C.A.) is a misdemeanor and punishable under Section 411 by a fine of up to twenty-five hundred dollars and/or by imprisonment of up to one year (in the case of a natural person).

DEBRIS DEUMPED IN THE HARBOR AND ALONG THE SHORE

Federal Decisions

Most Federal decisions involving the violation of Section 13 of the Rivers and Harbors Act pertain to the illegal deposits of solid fill, garbage, oil and other liquid pollutants. The case of <u>United States v. New York Central and Hudson Pile Driver No. 2, 239 F489</u> is one of the few cases involving drift that is obstructive or injurious to navigation.

Pile Driver No. 2 was engaged in repairing a ferry rack at the foot of West Forty-Second Street, New York. Lying alongside the pile driver was a raft containing piles which were too long for use and a man was engaged there in cutting them off and shoving the discarded ends into the river. This was done in three instances when the man was hailed by an inspection boat and the third piece was hauled back onto the raft. The discarded pieces were picked up by the patrol boat and were, respectively, about 20 feet and 13 feet long and 7 inches in diameter. The Circuit Court of Appeals, Second Circuit, affirmed a lower court decision that clearly these timbers were or might become a serious menace to navigation. Floating about in the crowded waters of the harbor of New York in the night as well as the day, they might easily be caught by the propeller wheels of vessels, thus endangering life as well as property.

DEBRIS DUMPED IN THE HARBOR AND ALONG THE SHORE

State and Local Statutes and Decisions

The Commonwealth of Massachusetts has enacted legislation in three different areas to cope with the problem of illegal deposits of refuse in the harbor and along the shores.

Section 52 of Chapter 91 of the General Laws of Massachusetts is primarily a dredging statute but it does make provisions for "other materials which may be placed on scows or boats to be transported and dumped in the tide water", and in 1968 it was amended to cover burning upon the water. Under Section 52 the Department of Environmental Quality Engineering shall supervise the transportation and dumping of all material dredged in the tidewaters of the Commonwealth, or of any material which may be placed in scows or boats to be transported and dumped in tidewaters, and may employ necessary inspectors therefor, who shall accompany the material while in transit. This section shall apply also to the burning of rubbish and other material upon any of the waters within the jurisdiction of the Department. Reasonable rules and regulations to control towing and burning rubbish or other debris within harbor lines and upon adjacent waters may be adopted by the Department, in accordance with Chapter 30A.

Section 17 of Chapter 102 of the General Laws applies to "Harbors and Harbormasters" as they relate to the regulation of trade. Section 17 covers the illegal deposit of substances or things injuring or obstructing navigation. "Whoever willfully and without lawful authority or license therefor, deposits in a harbor or other navigable tide waters, stones, gravel, mud, ballast, cinders, ashes, dirt or any other substance tending to injure the navigation or to shoal the depth thereof, or throws or drops in such waters any barrel, box, log, timber or other object, tending to obstruct the navigation thereof, shall be punished by a fine of not less than twenty nor more than one hundred dollars."

A 1967 Amendment to Section 16 of Chapter 270 making the disposal of refuse on highways a crime against public health has been expanded to include disposal made in coastal or inland waters. "Whoever, in disposing of garbage, refuse, bottles, cans or rubbish on a public highway or within twenty yards thereof, or in coastal or inland waters, whether salt water or fresh water, or within twenty yards of such waters, or on private property, without permission, commits a nuisance thereby, shall be punished by a fine of not more than fifty dollars." By extending the prohibited area to within twenty yards of coastal waters, Section 16 compliments Section 407, Title 33, U.S.C., making it unlawful to deposit refuse on the banks of navigable waters, where the same shall be liable to be washed into the waters.

DEBRIS DUMPED IN THE HARBOR AND ALONG THE SHORE

Recommendations and Corrective Legislation

No new Federal or State legislation is needed to prohibit the dumping of refuse in the harbor, but what is needed is a general tightening up of existing statutes. The right to injunctive relief should be made available to both Federal and State agencies in addition to an overall increase in fines on the State level. The \$500 maximum fine for illegal dumping under Section 55 of Chapter 91, the 100 maximum fine for illegal deposits under Section 17 of Chapter 102, and the \$50 fine for disposal of coastal waters under Section 16 of Chapter 270 are all low in relation to the \$2500 Federal maximum for illegal dumping under Section 411.

Acting under the 1968 Amendment to Section 52 of Chapter 91 the Massachusetts Department of Environmental Quality Engineering Division of Waterways licenses and supervises the loading and burning of disposal barges in the harbor while the Department of Natural Resources observes the transportation of the barges. By invoking the right to revoke these licenses the State has available an alternative remedy against negligent disposal operations.

To more effectively inspect or supervise the demolition of waterfront structures, <u>Section 46 of Chapter 91</u>, Massachusetts General Laws, should be expanded to include piers, docks and wharves in addition to the breaking of and disposal of vessels, scows or floating structures in the harbor.

A general review of shoreside dumps and dumping areas by local authorities is necessary with consideration given to require the erection of chain link or similar fencing along the banks to prevent accidental or intentional refuse deposits on the banks or in the water.

The final and most important step in controlling the dumping of debris in waters of the harbor and along the shores would be the establishment of an overall inspection plan composed of concerned local, State and Federal agencies with good lines of communication to the U. S. Attorney and Attorney General's office for prosecution.

PERTINENT FEDERAL STATUTES

<u>Title 33 U.S.C.A.</u> Section 401 - Construction of bridges, causeways, dams or dikes generally

It shall not be lawful to construct or commence the construction of any bridge. dam, dike, or causeway over or in any port, roadstead. haven, harbor, canal, navigable river, or other navigable water of the United States, until the consent of Congress, to the building of such structures shall have been obtained and until the plans for the same shall have been submitted to and approved by the Chief of Engineers and by the Secretary of the Army. Provided, That such structures may be built under authority of the legislature of a state across rivers and other waterways the navigable portions of which lie wholly within the limits of a single state, provided the location and plans thereof are submitted to and approved by the Chief of Engineers and by the Secretary of the Army before construction is commenced. And provided further, That when plans for any bridge or other structure have been approved by the Chief of Engineers and by the Secretary of the Army, it shall not be lawful to deviate from such plans either before or after completion of the structure unless the modification of said plans has previously been submitted to and received the approval of the Chief of Engineers and of the Secretary of the Army. Mar. 3, 1899, C. 425, Sec. 9, 30 Stat. 1151.

Title 33 U.S.C.A. Section 403 - Obstruction of navigable waters generally; wharves, piers, etc.; excavation and filling in

The creation of any obstruction not affirmatively authorized by Congress, to the navigable capacity of any of the waters of the United States is prohibited; and it shall not be lawful to build or commence the building of any wharf, pier, dolphin, boom, weir, breakwater. bulkhead, jetty, or other structures in any port, roadstead, haven, harbor, canal, navigable river, or other water of the United States. outside established harbor lines, or where no harbor lines have been established, except on plans recommended by the Chief of Engineers and authorized by the Secretary of the Army; and it shall not be lawful to excavate or fill, or in any manner to alter or modify the course, location, condition, or capacity of, any port, roadstead, haven, harbor, canal, lake, harbor of refuge, or inclosure within the limits of any breakwater, or of the channel of any navigable water of the United States, unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of the Army prior to beginning the same. Mar. 3, 1899. C. 425. Sec. 10, 30 Stat. 1151.

<u>Title 33. U.S.C.A. Section 406</u> - Penalty for wrongful construction of bridges, piers, etc.; removal of structures

Every person and every corporation that shall violate any of the provisions of sections 401. 403 and 404 of this title or any rule or regulation made by the Secretary of the Army in pursuance of the provisions of section 404 of this title shall be deemed guilty of a misdemeanor, and on conviction thereof shall be punished by a fine not exceeding \$2.500 nor less than \$500, or by imprisonment (in the case of a natural person) not exceeding one year, or by both such punishments, in the discretion of the court. And further, the removal of any structures or parts of structures erected in violation of the provisions of the said sections may be enforced by the injunction of any district court exercising jurisdiction in any district in which such structure may exist, and proper proceedings to this end may be instituted under the direction of the Attorney General of the United States. Mar. 3, 1899, C. 425, Sec. 12, 30 Stat. 1151.

<u>Title 33 U.S.C.A. Section 404</u> - Establishment of harbor lines; conditions to grants for extension of piers, etc.

Where it is made manifest to the Secretary of the Army that the establishment of harbor lines is essential to the preservation and protection of harbors he may, and is authorized to cause such lines to be established, beyond which no piers, wharves, bulkheads, or other works shall be extended or deposits made except under such regulations as may be prescribed from time to time by him: Provided, That whenever the Secretary of the Army grants to any person or persons permission to extend piers, wharves, bulkheads, or other works, or to make deposits in any tidal harbor or river of the United States beyond any harbor lines established under authority of the United States, he shall cause to be ascertained the amount of tidewater displaced by any such structure or by any such deposits, and he shall, if he deem it necessary require the parties to whom the permission is given to make compensation for such displacement either by excavation in some part of the harbor, including tidewater channels between high and low water mark, to such an extent as to create a basin for as much tidewater as may be displaced by such structure or by such deposits, or in any other mode that may be satisfactory to him. Mar. 3, 1899, C. 425, Sec. 11, 30 Stat. 1151.

Title 33 U.S.C.A. Section 407 - Deposit of refuse in navigable waters generally

It shall not be lawful to throw, discharge, or deposit, or cause, suffer, or procure to be thrown, discharged, or deposited either from or out of any ship, barge, or other floating craft of any kind or from the shore, wharf, manufacturing establishment, or mill of any kind, any refuse matter of any kind or description whatever other than that flowing from streets and sewers and passing therefrom in a liquid state, into any navigable water of the United States, or into any tributary of any navigable water from which the same shall float or be washed into such navigable water; and it shall not be lawful to deposit, or cause, suffer, or procure to be deposited material of any kind in any place on the bank of any navigable water, or on the bank of any tributary of any navigable water. where the same shall be liable to be washed into such navigable water, either by ordinary or high tides, or by storms or floods, or otherwise, whereby navigation shall or may be impeded or obstructed: Provided, That nothing herein contained shall extend to, apply to, or prohibit the operations in connection with the improvement of navigable waters or construction of public works, considered necessary and proper by the United States officers supervising such improvement or public work: And provided further, That the Secretary of the Army, whenever in the judgment of the Chief of Engineers anchorage and navigation will not be injured thereby, may permit the deposit of any material above mentioned in navigable waters, within limits to be defined and under conditions to be prescribed by him, provided application is made to him prior to depositing such materials; and whenever any permit is so granted the conditions thereof shall be strictly complied with, and any violation thereof shall be unlawful. Mar. 3, 1899, C. 425, Sec. 13, 30 Stat. 1152.

<u>Title 33 U.S.C.A. Section 408</u> - Taking possession of, use of, or injury to harbor or river improvements.

It shall not be lawful for any person or persons to take possession of or make use of for any purpose or build upon, alter, deface, destroy, move, injure, obstruct by fastening vessels thereto or otherwise, or in any manner whatever impair the usefulness of any sea wall, bulkhead, jetty, dike, levee, wharf, pier, or other work built by the United States, or any piece of plant, floating or otherwise, used in the construction of such work under the control of the United States, in whole or in part, for the preservation and improvement of any of its navigable waters or to prevent floods, or as boundary marks, tide gauges,

surveying stations, buoys, or other established marks, nor remove for ballast or other purposes any stone or other material composing such works: Provided, That the Secretary of the Army may, on the recommendation of the Chief of Engineers, grant permission for the temporary occupation or use of any of the aforementioned public works when in his judgment such occupation or use will not be injurious to the public interest. Mar. 3, 1899, C. 425, Sec. 14, 30 Stat. 1152.

<u>Title 33 U.S.C.A.</u> Section 409 - Obstruction of navigable waters by vessels; floating timber; marking and removal of sunken vessels.

It shall not be lawful to tie up or anchor vessels or other craft in navigable channels in such a manner as to prevent or obstruct the passage of other vessels or crafts; or to voluntarily or carelessly sink, or permit or cause to be sunk, vessels or other craft in navigable channels; or to float loose timber and logs, or to float what is known as 'sack rafts of timber and logs' in streams or channels actually navigated by steamboats in such manner as to obstruct, impede, or endanger navigation, And whenever a vessel, raft, or other craft is wrecked and sunk in a navigable channel, accidentally or otherwise, it shall be the duty of the owner of such sunken craft to immediately mark it with a buoy or beacon during the day and a lighted lantern at night, and to maintain such marks until the sunken craft is removed or abandoned, and the neglect or failure of the said owner so to do shall be unlawful; and it shall be the duty of the owner of such sunken craft to commence the immediate removal of the same, and prosecute such removal diligently, and failure to do so shall be considered as an abandonment of such craft, and subject the same to removal by the United States as provided for in sections 411-416, 418, and 502 of this title. Mar. 3, 1899, C. 425, Sec. 15, 30 Stat. 1152.

<u>Title 33 U.S.C.A.</u> Section 411 - Penalty for wrongful deposit of refuse, use of or injury to harbor improvements, and obstruction of navigable waters generally

Every person and every corporation, that shall violate, or that shall knowingly aid, abet, authorize, or instigate a violation of the provisions of sections 407, 408, and 409 of this title shall be guilty of a misdemeanor, and on conviction thereof shall be punished by a fine not exceeding \$2,500 nor less than \$500, or by imprisonment (in the case of a natural person) for not less than thirty days nor more than one year, or by both such fine and imprisonment, in the

discretion of the court, one-half of said fine to be paid to the person or persons giving information which shall lead to conviction. Mar. 3, 1899, C. 425, Sec. 16, 30 Stat. 1153.

<u>Title 33 U.S.C.A. Section 412</u> - Liability of masters, pilots, and so forth, and of vessels engaged in violations

Any and every master, pilot, and engineer, or person or persons acting in such capacity, respectively, on board of any boat or vessel who shall knowingly engage in towing any scow, boat, or vessel loaded with any material specified in section 407 of this title to any point or place of deposit or discharge in any harbor or navigable water, elsewhere than within the limits defined and permitted by the Secretary of the Army, or who shall willfully injure or destroy any work of the United States contemplated in section 408 of this title, or who shall willfully obstruct the channel of any waterway in the manner contemplated in section 409 of this title, shall be deemed guilty of a violation of sections 401, 403, 404, 406, 407, 408, 409, 411, 416, 418, 502, 549, 686, and 687 of this title, and shall upon conviction be punished as provided in section 411 of this title, and shall also have his license revoked or suspended for a term to be fixed by the judge before whom tried and convicted. And any boat, vessel, scow, raft, or other craft used or employed in violating any of the provisions of sections 407, 408, and 409 of this title shall be liable for the pecuniary penalties specified in section 411 of this title, and in addition thereto for the amount of the damages done by said boat, vessel, scow, raft, or other craft, which latter sum shall be placed to the credit of the appropriation for the improvement of the harbor or waterway in which the damage occurred, and said boat, vessel, scow, raft, or other craft may be proceeded against summarily by way of libel in any district court of the United States having jurisdiction thereof. Mar. 3, 1899, C. 425, Sec. 16, 30 Stat. 1153.

Title 33 U.S.C.A. Section 413 - Duty of United States Attorneys and other Federal officers in enforcement of provisions; arrest of offen 7 78

The Depa ent of Justice shall conduct the legal proceedings necessary to enforce the provisions of Sections 401, 403, 404, 406, 407, 408, 409, 411, 549, 686, and 687 of this title; and it shall be the duty of United States attorneys to vigorously prosecute all offenders against the same whenever requested to do so by the

Secretary of the Army or by any of the officials hereinafter designated and it shall furthermore be the duty of said United States attorneys to report to the Attorney General of the United States the action taken by him against offenders so reported, and a transcript of such reports shall be transmitted to the Secretary of the Army by the Attorney General; and for better enforcement of the said provisions and to facilitate the detection and bringing to punishment of such offender the officers and agents of the United States in charge of river and harbor improvements, and the assistant engineers and inspectors employed under them by authority of the Secretary of the Army, and the United States collectors of customs and other revenue officers shall have power and authority to swear out process, and to arrest and take into custody, with or without process, any person or persons who may commit any of the acts or offenses prohibited by the said sections or who may violate any of the provisions of the same: Provided, That no person shall be arrested without process for any offenses not committed in the presence of some one of the aforesaid officials; and provided further. That whenever any arrest is made under such sections, the person so arrested shall be brought forthwith before a commissioner, judge, or court of the United States for examination of the offense alleged against him; and such commissioner, judge, or court shall proceed in respect thereto as authorized by law in case of crimes against the United States. Mar. 3, 1899, C. 425, Sec. 17, 30 Stat. 1153; June 25, 1948, C. 646, Sec. 1, 62 Stat. 909, eff. Sept. 1, 1948.

Title 33 U.S.C.A. Section 414 - Removal by Secretary of the Army of sunken water craft generally

Whenever the navigation of any river, lake, harbor, sound, bay, canal, or other navigable waters of the United States shall be obstructed or endangered by any sunken vessel, boat, water craft, raft, or other similar obstruction, and such obstruction has existed for a longer period than thirty days, or whenever the abandonment of such obstruction can be legally established in a less space of time, the sunken vessel, boat, water craft, raft, or other obstructions shall be subject to be broken up, removed, sold, or otherwise disposed of by the Secretary of the Army at his discretion, without liability for any damage to the owners of the same: Provided, That in his discretion, the Secretary of the Army may cause reasonable notice of such obstruction of not less than thirty days, unless the legal abandonment of the obstruction can be established in a less time, to be given by publication, addressed "To whom it may concern," in a newspaper published nearest to the locality of the obstruction, requiring the removal thereof; and provided, also, That the Secretary of the Army may, in his discretion, at or after the time of giving such notice, cause sealed proposals to be solicited by public advertisement, giving reasonable notice of not less than ten days, for the removal of such obstruction as soon as possible after the expiration of the above specified thirty days' notice, in case it has not in the meantime been so removed, these proposals and contracts, as his discretion, to be conditioned that such vessel, boat, water craft, raft, or other obstruction, and all cargo and property contained therein, shall become the property of the contractor, and the contract shall be awarded to the bidder making the proposition most advantageous to the United States; Provided, That such bidder shall give satisfactory security to execute the work: Provided further, That any money received from the sale of any such wreck, or from any contractor for the removal of wrecks, under this paragraph shall be covered into the Treasury of the United States. Mar. 3, 1899, C. 425, Sec. 19, 30 Stat. 1154.

<u>Title 33, U.S.C.A. Section 415</u> - Summary removal of water craft obstructing navigation.

Under emergency, in the case of any vessel, boat, water craft, or raft. or other similar obstruction, sinking or grounding, or being unnecessarily delayed in any Government canal or lock, or in any navigable waters mentioned in section 414 of this title, in such manner as to stop, seriously interfere with, or specially endanger navigation. in the opinion of the Secretary of the Army, or any agent of the United States to whom the Secretary may delegate proper authority, the Secretary of the Army or any such agent shall have the right to take immediate possession of such boat, vessel or other water craft, or raft, so far as to remove or destroy it and to clear immediately the canal, lock, or navigable waters aforesaid of the obstruction thereby caused, using his best judgment to prevent any unnecessary injury, and no one shall interfere with or prevent such removal or destruction: Provided, That the officer or agent charged with the removal or destruction of an obstruction under this section may in his discretion give notice in writing to the owners of any such obstruction requiring them to remove it: And provided further, That the expense of removing any such obstruction as aforesaid, shall be a charge against such craft and cargo; and if the owners thereof fail or refuse to reimburse the United States for such expense within thirty days after notification, then the officer or agent aforesaid may sell the craft or cargo, or any part thereof that may not have been destroyed in removal, and the proceeds of such sale shall be covered into the Treasury of the United States. Mar. 3, 1899. C. 425, Sec. 20. 30 Stat. 1154.

Title 33 U.S.C.A. Section 419 - Regulation by Secretary governing transportation and dumping of dredgings, refuse, etc., into navigable waters; oyster lands; appropriations

The Secretary of the Army is authorized and empowered to prescribe regulations to govern the transportation and dumping into any navigable water, or waters adjacent thereto, of dredgings, earth, garbage, and other refuse materials of every kind or description, whenever in his judgment such regulations are required in the interest of navigation. Such regulations shall be posted in conspicuous and appropriate places for the information of the public, and every person or corporation which shall violate the said regulations, or any of them, shall be deemed guilty of a misdemeanor and shall be subject to the penalties prescribed in sections 411 and 412 of this title, for violation of the provisions of section 407 of this title: Provided, That any regulations made in pursuance hereof may be enforced as provided in section 413 of this title, the provisions whereof are made applicable to the said regulations: Provided further, That this section shall not apply to any waters within the jurisdictional boundaries of any State which are now or may hereafter be used for the cultivation of oysters under the laws of such State, except navigable channels which have been or may hereafter be improved by the United States, or to be designated as navigable channels by competent authority, and in making such improvements of channels, the material dredged shall not be deposited upon any grounds in use in accordance with the laws of such State for the cultivation of oysters, except in compliance with said laws: And provided further, That any expense necessary in executing this section may be paid from funds available for the improvement of the harbor or waterway, for which regulations may be prescribed, and in case no such funds are available the said expense may be paid from appropriations made by Congress for examinations, surveys, and contingencies of rivers and harbors. Mar. 3, 1905, C. 1482, Section 4, 33 Stat. 1147.

- Title 33 U.S.C.A. Section 426m <u>Collection and removal of drift and debris from publicly maintained commercial boat harbors and adjacent land and water areas</u> <u>Congressional findings</u>.
- Sec. 202.(a) The Congress finds that drift and debris on or in publicly maintained commercial boat harbors and the land and water areas immediately adjacent thereto threaten navigational safety, public health, recreation, and the harborfront environment.
- (b)(1) The Secretary of the Army, acting through the Chief of Engineers, shall be responsible for developing projects for the collection and removal of drift and debris from publicly maintained commercial boat harbors and from land and water areas immediately adjacent thereto.
- (2) The Secretary of the Army, acting through the Chief of Engineers, is authorized to undertake projects developed under paragraph (1) of this subsection without specific congressional approval when the total Federal cost for the project is less than \$400,000.
- (c) The Federal share of the cost of any project developed pursuant to subsection (b) of this section shall be two-thirds of the cost of the project. The remainder of such costs shall be paid by the State, municipality, or other political subdivision in which the project is to be located, except that any cost associated with the collections and removal of drift and debris from federally owned lands shall be borne by the Federal Government. Non-Federal interests in future project development under subsection (b) of this section shall be required to recover the full cost of drift or debris removal from any identified owner of piers or other potential sources of drift or debris, or to repair such sources so that they no longer create a potential source of drift or debris.
- (d) Any State, municipality, or other political subdivision where any project developed pursuant to subsection (b) of this section is located shall provide all lands, easements, and right-of-way necessary for the project, including suitable access and disposal areas, and shall agree to maintain such projects and hold and save the United States free from any damages which may result from the non-Federal sponsor's performance of, or failure to perform, any of its required responsibilities of cooperation for the project. Non-Federal interest shall agree to regulate any project area following project completion so that such area will not become a future source of drift and debris. The Chief of Engineers shall provide technical advice to non-Federal interests on the implementation of this subsection.

- (e) For the purposes of this section -
- (1) the term "drift" includes any buoyant material that, when floating in the navigable waters of the United States, may cause damage to a commercial or recreational vessel; and
- (2) The term "debris" includes any abandoned or dilapidated structure or any sunken vessel or other object that can reasonably be expected to collapse or otherwise enter the navigable waters of the United States as drift within a reasonable period.
- (f) There is authorized to be appropriated to carry out this section not to exceed \$4,000,000 per fiscal year for fiscal years 1978 and 1979.

PERTINENT MASSACHUSETTS STATUTES

Chapter 91, Section 10. Powers and duties relative to harbors, etc.

The department shall have general care and supervision of the harbors and tide waters within the commonwealth, of the flats and lands flowed thereby, of the waters and banks of the Connecticut River and the banks and waters of the non-tidal portion of the Merrimack River and of all structures therein, in order to prevent and remove unauthorized encroachments and causes of every kind which may injure said Connecticut River or said part of Merrimack River or interfere with the navigation of such harbors, injure their channels or cause a reduction of their tide waters and to protect and develop the rights and property of the commonwealth in such waters, flats and lands; and it may make such surveys, examinations and observations as it deems necessary therefore.

Chapter 91, Section 11. Improvement and preservation of rivers, streams, harbors, etc.

The department shall undertake such construction and work for the improvement, development, maintenance and protection of tidal and nontidal rivers and streams, great ponds, harbors, tidewaters, foreshores and shores along a public beach as it deems reasonable and proper, and for this purpose shall have the same powers conferred upon it by section thirty-one. The Department in pursuance of the work authorized, may construct, reconstruct, alter and repair bridges, culverts, conduits, pipes, walls and dams and may do such other incidental work as may be deemed necessary for the improvement and safety of waterways. ting the places to do such work, the department shall consider the general public advantage of the proposed work, the local interest therein as manifested by municipal or other contributions therefor, the importance of the industrial or commercial and other interests to be especially served thereby, and any other material considerations affecting the feasibility, necessity or advantage of the proposed work or the expenditure therefor. No work authorized by the section shall be begun until after a public hearing has been held and a survey and an estimate of the cost has been made. Approved June 20, 1955.

Chapter 91, Section 14. License for wharf, pier, dam, sea wall, etc. in or over tide waters, conduits, or cables under tide water.

The department shall undertake such construction and work for the improvement, development, maintenance and protection of tidal and non-tidal rivers and streams, great ponds, harbors, tide waters, foreshores and shores along a public beach as it deems reasonable and proper, and for this purpose shall have the same powers conferred upon it by section thirty-one. The department, in pursuance of the work authorized, may construct. reconstruct, alter and repair bridges, culverts, conduits, pipes, walls and dams, and may do such other incidental work as may be deemed necessary for the improvement and safety of waterways. In selecting the places to do such work, the department shall consider the general public advantage of the proposed work, the local interest therein as manifested by municipal or other contributions therefor, the importance of the industrial or commercial and other interests to be especially served thereby, and any other material considerations affecting the feasibility, necessity or advantage of the proposed work or the expenditure therefor. No work authorized by this section shall be begun until after a public hearing has been held and a survey and an estimate of the cost has been made.

The department is hereby authorized to enter into agreements with the Soil Conservation Service of the United States Department of Agriculture for the performance of work necessary on resource conservation and development projects approved for the commonwealth. Said agreements shall be limited to those for which the Soil Conservation Service is authorized to share in the installation cost, including flood prevention measures, agricultural water management, erosion and sediment control measures, fish and wildlife measures and recreation development.

In any project undertaken under the authority of this section, the department is authorized to pay the commonwealth's share of funds to the federal government if the Soil Conservation Service is the contracting agency for the project. Amended by St. 1971 c. 967."

Chapter 91 Section 15. Revocation and expiration of authority or license exception.

Every authority or license granted since eighteen hundred and sixty eight or hereafter granted by the commonwealth to any person to build a structure or do other work in, over and under the Connecticut River or the non tidal part of the Merrimack River, or in over or under the waters of any great nond or at any outlet thereof below high water mark, or upon ground over which the tide ebbs and flows. or to fill up or to enclose the same, whether such ground is above or 'velow low water mark, or within or beyond one hundred rods from high water mark, or whether private property or property of the commonwealth, shall be subject to the following conditions, whether expressed in the act, resolve or license granting the same or not. such authority or license shall be revocable at the direction of the general court and shall expire in five years from its date, except as to valuable structures, fillings or enclosures actually and in good faith built or made under the authority or license during the term thereof; but if compensation has been baid to the commonwealth under section twenty-two or under any similar provision of law, the rights and privileges for which it has been paid shall not so terminate or be revoked unless provision is made for repayment of such comnensation.

Chapter 1 Section 16. Cessation, determination of authority for non use. (As amended by chap. 568 of 1954 sec. 3)

Every authority or license granted since eighteen hundred and sixty eight by the general court or by the department or its nredecessors to any person to build or extend a wharf or other structures upon, or to drive piles in or to fill or otherwise occupy land in tide or navigable water, within Boston harbor or within the nort of Boston, as defined by the provisions of section two of chapter ninety one A which is revocable at the discretion of the general court, and every other similar right or privilege within Boston harbor or within the port of Boston, as defined by the provisions of section two of chapter ninety one A. which is so revocable, whether or not com nensation has been paid under any provision of law, or otherwise, shall hereafter cease and determine, or be subject to forfeiture, in case of non-use of the same for an unreasonable time without reasonable cause, and it shall be prima facie evidence that the same is held unused in restraint of trade when the tendency of such non-use is to prevent competition in its broad and general sense, unless such person has, prior to July twenty eighth, nineteen hundred and twelve,

made reasonable and substantial use of structures, or has reasonably and substantially occupied land in tide or navigable waters for the purposes for which the authority or license was granted; and there upon every such authority or license and every similar right and privilege shall cease and determine on repayment, or tender of repayment, by the commonwealth of compensation therefor to the amount which shall have been paid to the commonwealth in accordance with the terms of such authority or licenses, and the department and the attorney general shall cause a proper certificate of the revocation of such authority or license to be recorded forthwith in the registry of deeds for the county where such structure was built or work done. Approved June 7, 1954.

Chapter 91 Section 17. Construction of licenses; approval

No license or other authority to build structures upon or to fill up or enclose any ground mentioned in the two preceding sections shall be construed to interfere with or impair the right of any person affected thereby to equal proportional privileges of approaching low water mark or one hundred rods from high water mark, or harbor lines established by law, or to impair the right to obtain a license or authority so to approach of persons having interests in lands or flats which may be affected thereby, or to impair the legal rights of any person. All things done under such license or authority shall be subject to the approval of the department. If the general court establishes a harbor line within the outer line covered by such license or authority, the same shall be limited by and not extend beyond such harbor lines. This section, so far as may be, shall apply to licenses granted under section fifteen to erect structures on great ponds.

<u>Chapter 91 Section 20.</u> Supervision by department of erections under legislative grants

Whoever is authorized by the general court to build over tide waters a bridge, wharf, pier or dam, to fill flats or drive piles be low high water mark, or to build any structures in the Connecticut River, or in the non tidal part of the Merrimack River or to build or extend any structure or to do any other work mentioned in the preceding section, in, over or upon the waters of any great pond, shall not commence such work until he has given written notice thereof to the department and submitted plans of any proposed structure, the flats to be filled and the manner in which the work is to be performed, and the same has been approved in writing by the department, which may alter such plans and prescribe any direction.

limits and manner of doing the work consistent with the legislative grant. Such works shall be supervised by the department.

Chapter 91, Section 22. Compensation when title to land is in commonwealth.

If authority or a license is granted by the general court or by the department to a person to build a wharf or other structure upon, or to fill or otherwise occupy, land in tide waters, or to build or extend any structure or drive piles, fill land or make any obstruction, encroachment or excavation in. over or upon the waters of any great pond, he shall, before the work is begun, pay to the commonwealth such compensation for the rights granted in any land the title to which is in the commonwealth as shall be determined by the governor and council. This section shall not apply to authority granted to a county, city or town for the construction, widening, or maintenance of a bridge constituting a party of a highway.

Chapter 91, Section 23. Public nuisances: unauthorized erections in tide waters: injunction: abatement.

Every erection made and all work done within tide water, or within the waters of a great pond or outlet thereof. or on, or within the banks of the Connecticut River. or the Merrimack River, below high water mark not authorized by the general court or by the department, or made or done in a manner not sanctioned by the department: if a license is required as hereinbefore provided, shall be considered a public nuisance. The attorney general or the district attorney within their respective districts shall, at the request of the department, institute proceedings to enjoin or abate such nuisance, or to restrain the removal of material from any bar or breakwater of any harbor.

Chapter 91, Section 34. Establishment of harbor lines

The department of public works may, after hearing the parties interested, prescribe lines in any harbor of the commonwealth and make report thereof to the general court, not later than the next session, for its action thereon. If such lines are established by the general court as the harbor lines of said harbor, no wharf, pier or other structures shall thereafter be extended into said harbor beyond such lines, except as provided by section fourteen. Notice of the hearing shall be published three weeks successively in a newspaper published in Boston and in one or more published in the county or counties where such harbor lies, the first publication to be at least thirty days before the hearing.

Chanter of Section 38. Removal of wrecks, etc., on shores or in waters.

The department shall take charge of any wrecked vessel or other shipwrecked property, on any of the shores or waters of the commonwealth, except the Charles River Basin, and not in the custody of the owner or his agent or of any other person lawfully authorized to take possession of it; if the value thereof is one hundred dollars or more and may take charge of any such vessel or property if it is of less than said value. The department may make rules and regulations necessary for taking charge of such vessel, or property, for restoring it to its owners upon payment of the expense incurred by the common wealth in the taking and care thereof, or for otherwise disposing of such property.

Chapter 91 Section 39. Removal of wrecks in the tide waters.

If a wrecked, sunkenor abandoned vessel, or any unlawful or unauthorized structure or thing, is deposited or suffered to remain in the tide waters of the commonwealth, except the Charles River Basin, and if the department deems it is, or is liable to cause or become, an obstruction to the safe and convenient navigation or other lawful use of such waters, the department shall remove it or cause it to be removed.

Chapter 91. Section 40. Notice to owner of vessel causing obstruction.

If any person in the United States is known to the department as the owner of such vessel or of any interest therein such as having or exercising any control over it as master, agent, insurer or other wise, or as having alone or with others built, deposited or caused any other unlawful obstruction, or as owning, maintaining or using the same in whole or in part, the department shall give written notice to remove such vessel or other obstruction within a time there in specified. Such notice shall be deemed a sufficient notice to all such owners and other persons if served on one or more of them by the department, or by its order, by delivering the same in hand, by leaving it at the usual place of business or abode or duly mailing it to the post office address of the owner or other person upon whom it is to be served.

Chanter 91 Section 41. Removal after notice.

If such vessel or other obstruction is not removed within the time specified in such notice, and in a manner and to a place

satisfactory to the denartment, or if no such owner or other nerson upon whom notice can be served is known to the department it may remove such vessel or other obstruction, or complete the removal thereof or cause the removal to be made in such manner and to such place as it deems best: and the necessary cost and expense of such removal, if not paid by some owner or other person liable therefor shall when certified by the department and approved by the governor and council, be paid by the commonwealth.

Chapter 91 Section 42. Liability for expense of removals.

Whoever owns a vessel or an interest in a vessel willfully or maliciously wrecked, sunk or abandoned as aforesaid and removed as provided in the preceding section, either when such vessel became an obstruction or at any time before such removal is completed, and whoever has or exercises any control over such vessel or any part thereof, and the persons originally building, depositing or causing any other obstruction so removed, or owning, maintaining or using the same in whole or in part at the time of such removal or at any time prior thereto, shall be liable for the cost and expenses of such removal, or to repay the same when paid by the commonwealth: and such costs and expenses may be recovered in an action of the contract brought by the department in the name of the commonwealth against such owners or other persons, or any of them. The attorney general and the district attorneys within their respective districts shall commence and conduct such actions. All money so repaid or recovered shall be paid by the commonwealth. Whoever, on a judgment or otherwise, pays more than his proportion of the costs and expenses aforesaid, shall have a claim for contribution against other parties liable therefor according to their respective interests.

Chapter 91, Section 43. Sale of vessel or other obstruction.

If the cost and expenses of removing a vessel or other obstruction as aforesaid are not paid or repaid by some owner or other person liable therefor within ten days after such removal has been completed, the department may sell such vessel or other obstruction, or the materials and appurtenances thereof, at public or private sale, and the net proceeds of such sale shall be paid to the commonwealth and deducted from the amount to be repaid or recovered as provided for in the preceding section.

Chapter 91 Section 44. Liability of insurer.

An insurer of a vessel who has paid the loss thereon shall not, by reason of such insurance, be held liable to remove such vessel, or to pay the cost and expenses of such removal, unless he has exercised some act of ownership or control over such vessel or some part or appurtenance thereof or received the proceeds of the sale therefor.

Chapter ol, Section 45. Application to United States for reimbursement.

The department shall make application to the government of the United States for reimbursement of any amounts expended under any provision of the seven preceding sections, which, in the opinion of the department, might properly be paid by the United States.

Chapter 1. Section 46. License for breaking up and disposing of floating structures.

The owners of any vessel, scow, lighter or similar floating structure lying within the limits of any harbor of the commonwealth shall not, without first obtaining a license therefor from the department, cause or permit the same to be broken up or altered to such an extent that it will not keep affoat with ordinary care, nor shall they ground any such craft within any such harbor or permit other persons so to do, or to remove any part thereof.

Chapter 91, Section 46A. Penalty for violation of Section 46. (Added 1935, 362, S.1.)

Whoever without first obtaining the license required by section forty six, causes or permits the work of breaking up or altering of any vessel, scow, lighter or other structure, as described in said section, shall be subject to a benalty of not less than five dollars nor more than five hundred dollars to the use of the commonwealth to be recovered by an information in equity brought by the attorney general in the superior court.

Chapter 91, Section 47. Application for license; issuance; conditions: bond.

Unon the application of the owner of any vessel, scow, lighter or similar floating structure, the department may issue a license authorizing him to break up such vessel or other floating structure

upon the following conditions; first, that the written consent of the owner of the premises where the work is to be done shall first be obtained and filed with the department: second, that all the material composing the vessel or other structure shall be removed wholly from tide water, to the satisfaction of the department: third, that the work shall be completed within a certain fixed time, which may be extended by the department: fourth, if the work is not completed at the time fixed in the license or as so extended, the department may cause the work to be completed at the expense of the licensee; and fifth, such other conditions as the department deems proper in any case. Before receiving the license, the licensee shall file a bond with the department in a sum fixed by it, with satisfactory sureties, in which the commonwealth is obligee, conditioned to perform the provisions of the license and to pay to the commonwealth such sums as it may expend in connection with the work licensed.

Chapter 91, Section 48. Completion of work by department: failure to comply with terms of contract.

Whenever a licensee under wither of the two preceding sections fails to comply with the terms of his license, the department may proceed to complete the work and remove from tide water all materials composing the vessel or other structure, and the cost thereof shall, in the first instance, be haid from the appropriation made therefor. If not repaid to the commonwealth by the licensee upon demand, it may be recovered by the state treasurer in contract, brought by him in behalf of the commonwealth in the superior court against the licensee or the sureties on his bond.

Chapter 91, Section 49. Penalty for grounding floating structures within harbor: sinking by accident.

Whoever grounds or abandons any vessel, scow, lighter or other floating structure within the limits of any harbor of the commonwealth or upon any property other than his own, along the shores of the commonwealth without the permission of the owner of said property, or permits other persons to do so, or whoever being the owner of in whole or in part, or agent or other person exercising any control over, such vessel, scow, lighter or structure which has, or has been, so grounded or abandoned, fails to remove the same within such time as shall be designated in a written notice by the department, shall be punished by a fine of not less than fifty dollars nor more than five hundred dollars. This section shall not apply in any case, where, by reason of accident, emergency, errors of navigation,

or in order to prevent loss of life or the sinking of a vessel, scow, lighter or other structure, such vessel, scow lighter or structure is or has been grounded within the limits of any harbor or on any of the shores of the commonwealth. The provisions of this section shall be enforced by the department of public safety and by all other officers authorized to make an arrest. If, in any prosecution under this section, the defendant alleges that such structure was grounded or abandoned on property with the permission of the owner of said property, the burden of proving said permission shall be upon the defendant. Amended by St. 1975, c. 706, sec. 130.

Chapter 1, Section 49B. Removal of dilapidated wharves or piers: notice revocation of license; liability for cost; lien

The department shall remove or cause to be removed any wharf or nier located in the tide waters or tide lands of the commonwealth, which in the opinion of the department is dilapidated, unsafe, a menace to navigation or is a source of floating debris that is, or is liable to become, a menace to navigation.

If the owner of record of such wharf or pier is known to the department, the department shall give such owner written notice to remove such wharf or pier within a reasonable time therein specified. Such notice shall be deemed sufficient if delivered to the owner in hand, if left at his usual place of business or abode or if sent by certified mail to his last known post office address.

If such wharf or nier is not removed in a manner satisfactory to the department within the time specified in such notice, the denartment may revoke forthwith any license or authority applicable to such wharf or pier issued or granted under the provisions of sections fourteen through eighteen, inclusive. If such wharf or pier is not removed in a manner satisfactory to the department within the time specified in such notice, or if the department has been unable to make sufficient service of such notice, the department shall remove, complete that removal or cause to be removed such wharf or nier. The owner of such wharf or pier shall be liable to the commonwealth for the costs and expenses for such removals and the sum so received shall be credited to the Harbors and Inland Waters Maintenance Fund established by section ten B. If the owner fails to reimburse the commonwealth within thirty days of such removal, the department, in the name of the commonwealth, may take a lien on any real property held by the owner of said wharf or pier. The commonwealth shall place on record in the proper registry of deeds or registry district of the land court, as the case may be, an

instrument in writing and under seal executed in common form and acknowledged in the same manner as deeds for real property creating a lien upon such real estate for the amount of the costs and expenses of such removal. The instrument shall be recorded or registered without fee. Such lien shall be enforceable by a petition or bill in equity filed by the attorney general in the superior court or in the probate court for the county wherein the real estate is situated. The subposena shall be returnable not more than thirty days subsequent to the entry of the bill and shall contain a brief description of the property sufficient to identify it, and a statement of the amount alleged to be due. Upon reimbursement for the amount due under the terms of such lien, the attorney general shall execute and deliver a satisfaction thereof, and, upon its being recorded or registered, the lien shall be dissolved as of the date of such recordation or registration.

The department may make application to the government of the United States for reimbursement of any amounts expended under any provision of this section. Added by St. 1970, c. 878, Sec. 4. Amended by St. 1974, c. 808.

Chapter 91 Section 52. Supervision of transportation and dumping of dredged material in tide waters; payment of cost.

The department shall supervise the transportation and dumping of all material dredged in the tide waters of the commonwealth, or of any other material which may be placed in scows or boats to be transported and dumped in tide water, and may employ necessary inspectors therefor, who shall accompany the material while in transit, either upon the scows containing the material or upon the boat towing them, upon which they shall be provided with proper and suitable quarters and board by the owner of the boat. The cost of such supervision and also of the supervision under licenses and permits authorizing such transportation or dumping granted by the department, shall in the first instance be paid from such appropriation as may be available, if the material is taken outside of Boston harbor, and from the Port of Boston Fund if taken in said harbor, and shall be repaid to the commonwealth monthly by the owners of the dredges or other machines doing the excavating when the material is dredged in tide water and credited respectively to the environmental fund or to said Port of Boston Fund, and, in the case of other material, by the owners of the scows in which it is transported, the monthly amount due from each owner to be determined and certified to the state treasurer by the department.

This section shall apply also to the burning of rubbish and other material upon any of the waters within the jurisdiction of the department. Reasonable rules and regulations to control towing and burning rubbish or other debris within harbor lines and upon adjacent waters may be adopted by the department, in accordance with Chapter thirty A. (Approved July 16, 1968).

Chapter of Section 53. Terms of license.

Every license or permit issued to any person to dredge in the tide waters of the commonwealth shall contain a provision that the transportation and dumping of the dredged material shall be done under the supervision of the department as provided in the preceding section, and that the licensee shall be held liable to pay the cost of said supervision whenever the owner of the dredge or excavating machine fails to pay for the same within ten days after written notification from the state treasurer that the same is due.

Chapter 11, Section 54. Du moing notice inspector; cost of supervision.

Every contractor or other person shall, at least three days before commencing any place of dredging in tide water, give written notice to the department of the location and amount of the proposed work, and the time at which it is expected work will begin and, except with the written assent of the department, no dredged or other material which it is proposed to dump in tide water, shall be transported or dumped within the tide waters of the commonwealth, unless there is present aboard the scows containing the material, or on the boat towing the same, an inspector employed for that purpose by the department; and no such material shall, in any event, be dumped within the limits of any channel which has been deepened by dredging, nor in any other part of the tide waters of the commonwealth, unless the same has been duly authorized. The state treasurer may recover in contract from such contractor or person the cost of supervision determined as provided in the two preceding sections.

Chapter 91, Section 55. Penalty for violations.

Whoever violates any provision of the three preceding sections or of any license or permit granted under said sections shall, upon complaint by the department or its agents to the Superior Court, be subject to a fine of not more than five hundred dollars, to be paid to the commonwealth upon the judgment or order of the court.

Chapter 102, Section 17. Illegal deposit of substances or things injuring or obstructing navigation.

Whoever willfully and without lawful authority or license therefor, deposits in a harbor or other navigable tide waters stones, gravel, mud, ballast, cinders, ashes, dirt or any other substance, tending to injure the navigation or to shoal the depth thereof, or throws or drops into such waters any barrel, box, log, timber or other object tending to obstruct the navigation thereof, shall be punished by a fine of not less than twenty nor more than one hundred dollars.

Chapter 102, Section 24. Removal of vessel lying in harbor.

A harbor master may, at the expense of the master or owner thereof cause the removal of any vessel which lies in his harbor and is not moved when directed by him, and upon the neglect or refusal of such master or owners on demand to pay such expense he may recover the same from them in contract. to the use of the town where the harbor is situated.

Chapter 107, Section 25. Removal of vessel lying at wharf.

If the master or other person in charge of a vessel occupying a berth at a public wharf or pier fails, after notice from the wharfinger thereof or his agent, to remove his vessel from such berth within such time as the harbor master adjudges reasonable or if the master or other person in charge of such vessel has absented himself from the area of the berth for a period of time exceeding three times the posted limit, and cannot be contacted for the purpose of giving him notice to remove his vessel from such berth, the harbormaster may cause such vessel to be removed to some other berth or anchored in the stream, and the city or town wherein the public wharf, pier or float is located, may recover the costs of such removal in an action of contract from the owner agent or master of said vessel, said costs not to exceed fifty dollars. Amended by St. 1975 c. 57.

Chapter 10?, Section 27. Report of violations.

Harbor masters shall report to the Department of Environmental Quality Engineering any violation of section seventeen or of any law relating to tide-vater in their respective harbors, and of all ship-wrecks in the tide waters of their respective harbors, and of any obstruction therein.

Chapter 102, Section 28. Penalties.

Whoever violates any of the provisions of the ten preceding sections or refuses or neglects to obey the lawful orders of a harbor master, or resists him in the execution of his duties; shall be punished by a fine of not more than fifty dollars, and shall be liable in tort to any person suffering damage thereby.

<u>Chapter 270. Section 16.</u> Disposal of rubbish etc. on or near high ways and coastal or inland waters, penalties; applicability to dumping grounds, enforcement

Whoever places, throws, deposits or discharges or causes to be placed, thrown, deposited or discharged any trash, refuse, rubbish, debris or any other materials of any kind on a public highway or within twenty yards thereof, or on any other public land, or in or upon coastal or inland waters as defined in section one of chapter one hundred and thirty one, respectively, or within twenty yards of any such water, or on property of another without permission of the owner thereof, shall be punished by a fine of not more than two hundred dollars, and the court may require, in addition thereto, that such person remove, at his own expense, such trash, refuse, rubbish, debris or materials.

If a motor vehicle is used in committing such an offense, a conviction under this section shall forthwith be reported by the court to the registrar of motor vehicles, and the registrar may suspend the license of the operator of such vehicle for not more than thirty days, and if it appears from the records of the registrar of motor vehicles that the person so convicted is the owner of the motor vehicle so used, the registrar may suspend the certificate of registration of said vehicle for thirty days.

The provisions of this section shall not be applicable to any dumping ground approved under section one hundred and fifty A of chapter one hundred and eleven or by other appropriate public authority.

This section shall be enforced by natural resources officers, by the director of the division of motorboats or his authorized agents, by harbormasters and assistant harbormasters, by members of the state police and inspectors of the registry of motor vehicles and by city, town, and metropolitan district commission police officers. In the city of Boston, this section shall also be enforced

by the commissioner of health and hospitals, by the commissioner of housing inspection, and by the commissioner of public works, and their respective authorized agents, and in section sixteen A. the commissioner of health and hospitals, the commissioner of housing inspection, and the commissioner of public works, shall be deemed to be the commanding officers of their respective authorized agents. Amended by St. 1971, c. 79. St. 1972, c. 191. St. 1973, c. 835, Sec. 1. Stat. 1974, c. 30."

Chapter 270, Section 16A. Alternative noncriminal disposition of violations of section 16; Notice to appear before the clerk of district court; payment of fine

If any officer empowered to enforce section sixteen takes cognizance of a violation thereof, he may request the offender to state his name and address. Whoever, upon such request, refuses to state his name and address, may be arrested without a warrant, or if he states a false name and address or a name and address which is not his name and address in ordinary use, he shall be punished by a fine of not less than twenty nor more than fifty dollars. Such officer may, as an alternative to instituting criminal proceedings, forthwith give to the offender a written notice to appear before the clerk of the district court having jurisdiction at any time during office hours, not later than twenty one days after the date of such violation. Such notice shall be made in triplicate, and shall contain the name and address of the offender and, if served with notice in hand at the time of such violation the number of his license, if any, to operate motor vehicles the registration number of the vehicle or motor boat involved, if any the time and place of the vio lation; the specific offense charged; and the time and place for his required appearance. Such notice shall be signed by the officer and shall be signed by the offender whenever practicable in acknowledgement that the notice has been received. The officer shall if possible deliver to the offender at the time and place of the violation a copy of said notice. Whenever it is not possible to deliver a copy of said notice to the offender at the time and place of the violation, said copy shall be mailed or delivered by the officer, or by his commanding officer or any person authorized by said commanding officer, to the offender s last known address, or in the case of a violation involving a motor vehicle or motor boat registered under the laws of this commonwealth, within five days of the offense, or in the case of any motor vehicle or motor boat registered under the laws of another state or country, within ten days thereof, exclusive in either case, of Sundays and holidays, to the address of the registrant of the motor vehicle or motor boat involved, as appearing in

the case of a motor vehicle registered under the laws of this common. wealth, in the records of the registry of motor vehicles or the division of motor boats, or, in the case of a motor vehicle or motor boat registered under the laws of another state or country in the records of the official in such state or country having charge of the registration of such motor vehicle or notor boat. Such notice mailed, by the officer his commanding officer or the person so authorized to the last address of said registrant as appearing as aforesaid shall be deemed a sufficient notice and a certificate of the officer or person so mailing such notice that it has been mailed in accordance with this section shall be deemed prima facie evidence thereof and shall be admissible in any court of the commonwealth as to the facts contained therein. At or before the completion of each tour of duty the officer shall give to his commanding officer those copies of each notice of such a violation he has taken cognizance of during such tour which have not already been delivered or nailed by him aforesaid. Said commanding officer shall retain and safely preserve one of such copies and shall, at a time not later than the next court day after said delivery or mailing, deliver another of such copies to the clerk of the court before whom the offender has been notified to appear. The clerk of each district court shall maintain a separate docket of all such notices to appear.

Any person notified to appear before the clerk of a district court as hereinbefore provided may appear before such clerk and confess the offense charged either personally or through an agent duly authorized in writing, or by mailing to such clerk, with the notice, the sum provided herein, such payment to be made only by postal note. money order or check. If it is the first, second or third offense subject to this section committed by such person within the jurisdiction of the court in the calendar year, payment to such clerk of the sum of twenty dollars shall operate as a final disposition of the case; if it is the fourth or subsequent such offense so committed in such calendar year, payment to such clerk of the sum of one hundred dollars shall operate as a final disposition of the case. Proceedings under this pargraph shall not be deemed criminal; and no person notified to appear before the clerk of a district court as provided herein shall be required to report to any probation officer, and no record of the case shall be entered in the probation records.

If any person notified to appear before the clerk of the district court fails to appear and pay the fine provided hereunder or, having appeared, desires not to avail himself of the procedure hereinbefore provided for the noncriminal disposition of the case, the clerk shall, as soon as may be, notify the officer concerned, who shall forthwith make a complaint and follow the procedure established for criminal cases, and shall notify if a motor vehicle is involved, the registrar of motor vehicles or, if a motor boat is involved, the division of motor boats. If any person fails to appear in accordance with the summons issued upon such complaint the clerk shall send such person by certified mail, return receipt requested, a notice that the complaint is pending and that, if the person fails to appear within twenty one days from the sending of such notice a warrant for his arrest will be issued. If any person fails to appear within twenty one days from the sending of such notice, the court shall issue a warrant for his arrest.

The notice to appear, provided herein, shall be printed in such form as the chief justice of the municipal court of the city of Boston may prescribe for said court, and as the chief justice of the district courts may prescribe for district courts other than the municipal court of the city of Boston: provided, however, that a notice prepared pursuant to section twenty A or section twenty C of chapter ninety may be so revised or adapted that said notice may also be used for the notice provided for in this section. Added by St. 1971, c. 358. Amended by St. 1973, c. 1107.

CANADIAN NAVIGABLE WATERS PROTECTION ACT

Chapter 193 of the Revised Statutes of Canada (R.S. 1952, c. 140) as amended, entitled "Navigable Waters Protection Act," provides in part the following:

- which the Parliament of Canada has jurisdiction is obstructed, impeded or rendered more difficult or dangerous by the wreck, sinking lying ashore or grounding of any vessel or part thereof or other thing, the owner, master or person in charge of such vessel or other thing, by which any such obstruction or obstacle is caused, shall forthwith give notice of the existence thereof to the Minister or to the collector of customs and excise at the nearest or most convenient port, and shall place and, as long as such obstruction or obstacle continues, maintain, by day, a sufficient signal, and, by night, a sufficient light to indicate the position thereof.
- (?) The Minister may cause such signal and light to be placed and maintained, if the owner, master or person in charge of such vessel or other thing by which the obstruction or obstacle is caused fails or neglects so to do.
- (3) The owner of such vessel or thing shall forthwith begin the removal thereof, and shall prosecute such removal diligently to completion; but nothing herein shall be deemed to limit the powers of the Minister under this Act. R.S., c. 140, s. 14.
- The Minister may, if in his opinion, (a) the navigation of any such navigable water is obstructed, impeded or rendered more difficult or dangerous by reason of the wreck, sinking, partially sinking, or lying ashore or grounding of any vessel, or of any nart thereof, or of any other thing, (b) by reason of the situation of any wreck or any vessel, or any part thereof, or of any other thing so lying sunk partially sunk ashore or grounded the navigation of any such navigable water is likely to be obstructed, impeded or rendered more difficult or dangerous, or (c) any vessel or part thereof, wreck of other thing cast ashore, stranded or left upon any property belonging to Her Majesty in right of Canada, is an obstacle or obstruction to such use of the said property as may be required for the public purposes of Canada, cause such wreck, vessel or part thereof or other thing, if the same continues for twenty-four hours to be removed or destroyed in such manner and by such means as he thinks fit. R.S., c. 140, S. 15.

- or anything causing or forming part of any such obstruction or obstacle, to be conveyed to such place as he thinks proper, and to be there sold by auction or otherwise as he deems most advisable; and may apply the proceeds of such sale to make good the expenses incurred by him in placing and maintaining any signal or light to indicate the position of such obstruction or obstacle, or in the removal, destruction or sale of such vessel, cargo or thing.
- (2) The Minister shall pay over any surplus of such proceeds or portion thereof to the owner of the vessel, cargo or thing held, or to such other persons as are entitled to the same respectively. R.S., c. 140, S. 16.
- (1) When pursuant to this Part, the Minister has caused (a) any signal or light to be placed and maintained to indicate the position of a vessel or part thereof or any other thing that, because of its wreck, sinking lying ashore or grounding, caused or was likely to cause the navigation of any navigable water over which the Parliament of Canada has jurisdiction to become obstructed, impeded or rendered more difficult or dangerous, (b) to be removed or destroyed any vessel or part thereof, wreck or any other thing that because of its wreck sinking lying ashore or grounding, caused or was likely to cause the navigation of any such navigable water to become obstructed, impeded or rendered more difficult or dangerous, or (c) to be removed or destroyed any vessel or part thereof, wreck or any other thing cast ashore, stranded or left upon any public property belonging to Her Majesty in right of Canada, and the cost thereof has been defrayed out of public moneys of Canada, the amount of such cost, whether or not a sale has been held under section 15 constitutes a debt due to and recoverable by Her Majesty in right of Canada (d) from the owner, managing owner, master or person in charge of the vessel or other thing at the time of the wreck, sinking, partial sinking, lying ashore or grounding thereof, or (e) from any person through whose act or fault or through the act or fault of whose servant the sinking, partial sinking, lying ashore or grounding of the vessel or other thing was occasioned or continued. R.S. c. 37, 1954."

BOSTON HARBOR, MASSACHUSETTS FEASIBILITY REPORT FOR DEBRIS REMOVAL

Pertinent
Correspondence

APPENDIX



DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
WALTHAM, MASS.

DECEMBER 1979 (REVISED MAY 1980)

APPUNDIX 7

PERTINENT CORRESPONDENCE

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Appendix 7



THE COMMONWEALTH OF MASSACHUSETTS EXECUTIVE DEPARTMENT

STATE HOUSE BOS10N 02133

November 1, 1979

Colonel Max B. Scheider Division Engineer New England Division Corps of Engineers 424 Trape o Road Waltham, MA 02154

Dear Colonel Scheider:

This will acknowledge receipt of your August 10, 1979 letter concerning the elimination of drift material, debris, derelict vessels and dilapidated piers that constitute hazards to navigation in Boston Harbor.

The Commonwealth endorses the proposal and continues to exhibit the abili y to meet conditions of local cooperation that you describe.

The issue of increased non-federal cost-sharing, however, is of grave convern to me. It now appears that the Corps is proposing to increase that loca amount from \$6,851,000 to \$13,718,000.

The basic proposal by the Corps to the Commonwealth in August of 1978 required only a 40% non-fideral contribution to the proposed work. That level of funding was acceptable and mutually agreed upon. Massachusetts indicated a willingness to accept the total municipal obligation and accordingly spotsored legislation to provide the funds. The current proposal increases the non-federal share to in excess of 90%. While we do not support this new formula, we will continue to pursue those administrative and legislative measures necessary to alter the proposed cost sharing arrangement.

It is requested that you effect review of the President's Policy Message as it relates to this project, and advise me when funding distribution is restored to compliance with the original commitment. At that point we would be in a position to move forward with the project.

Your continued interest and cooperation in this important project is acknowledged and is appreciated.

Appendix 7 1

EJK/KAN/ks



DEPARTMENT OF THE ARMY

NEW ENGLAND DIVISION, CORPS OF ENGINEERS 424 TRAPELO ROAD

WALTHAM, MASSACHUSETTS 02154

REPLY TO ATTENTION OF:

HUBPL-C

10 August 1979

Honorable Edward J. King Governor of the Commonwealth of Massachusetts State Mouse Loston, Massachusetts 02133

Dear Governor King:

The Congressionally authorized study to determine the advisability of eliminating the sources of drift and debris that constitute possible obstacles or hazards to navigation in Bostos Sarl or has reached a significant milestone. The New England Division of the Corps of Engineers will transmit copies of the final Yeas, bility Report and Environmental Impact Statement for review and communitat the Washington level as soon as your response to this letter is received. The \$15,828,000 harbor cleanup proposal includes: (1) clearing Boston Harbor of all existing drift hazardous to mavigation; (2) removing all sources of debris consisting of dilapidated waterfront structures, sunken wooden vessels and loose ousbore floatable debris and (3) burying the debrie at an existing privately-ewned sanitary leadfill in Marshfield. Debris from the immer harbor, representing about 90 percent of the 3.2 million cubic fact of material, will be brought via water to a transfer site in South Boston fermarly known as the South Boston Navy Yard and debris from the outer harbor will be brought via water to a transfer site at the Hinghen Industrial Center. Debris would then be transferred, reduced in size, trucked to and buried at the Marshield canitary landfill area. The plan also includes, where warranted, the repair of cortain partly dilapidated structures, which are being used and will remain in use.

Annual conetery benefits to navigation (through reduction in bost-drift collisions) and to shorefront property (through cost reduction of future development and increased property values) are expected to total \$1,335,200. These benefits compared with the estimated annual charges of \$1,128,700 on the \$15,828,000 proposed investment would result in a benefit-cost ratio of 1.18 to 1.0, sufficient to justify federal participation in a one-time cleanup program.

Appendix 7

2

10 August 1979

NFDPL-C Bonorable Edward J. King

Coordination of our draft Feasibility Report and draft Environmental Impact Statement was accomplished with the previous State administration. Since that time, several changes in the cost allocation between the Federal and non-Federal interests have been made. As you may recall from our 18 July meeting, the revised cost allocation results from the application of Section 202 of P.L. 94-587 (the Water Resources Development Act of 1976). The law states that cost sharing applies only to the removal and disposal of drift and debris when there is no identified owner of the source. The estimated cost of unidentifiable sources of drift and debris and thus eligible for Federal cost sharing is \$3,165,000. The local interest share is one-third or \$1,055,000.

Then owners of piers or other potential sources of drift or debris can be identified, the Commonwealth of Massachusetts may recover the full cost of the drift or debris removal from that identified owner. For purposes of completing the report, it has been assumed that owners of all waterfront structures can be identified thus no Federal cost sharing is available for cleanup of those structures. The astimated cost for this work is \$10,300,000. Subsequent to Congressional approval of this project and early during the design phase a survey would be done to determine ownership of debris sources in Boston larbor.

The repair of partially dilapidated structures which are being used and the disposal of the unwanted wood material generated from this repair is a local cost item not eligible for Federal cost sharing. The estimated cost of this work is \$2.363,000. In addition the work will be performed simultaneously with the work to be performed by the Federal Covernment for the project.

Regarding project costs, the President in his lune 1978 water policy message, and in a more recent (May 1479) legislative proposal to longrens, proposed several changes in cost sharing for water resource projects to allow States to participate more actively in project implementation decisions. These changes include a cash contribution row benefiting States of 5 percent of first costs of construction assigned to nonvendible project purposes and 10 percent of costs assigned to vendible project purposes. Application of this policy to the Roston Barbor debris project would require a contribution from the lommonwealth of Hassachusetts of an estimated \$731,000 in cash (5 or one of the 015,026,000 total estimated project first costs assigned o nonvendible; roject purposes, based on 1978 price levels).

This cash contribution would not be required until immediately prior to project construction and would be in addition to any other non-Federal costs required by current legislation and regulations for project implementation. The total Federal estimated first cost for the recommended plan of impresement including the President's proposed cost sharing policy would be \$1,319,000. (In absence of that policy, it would be \$2,110,000.)

As a result of our findings, I istend to recommend that the selected cleanup plan for 8 ston Herbor be implemented in accordance with the President's proposed cost-sharing policy. All recommendations are subject to approve by higher Federal authority, including the Congress, and to the conditions that the Commonwealth of Massachusetts fulfill the following responsibilities:

- (1) Provide, without cost to the United States, all lands, easements and rights-o'-way required for construction and future maintenance of the project.
- (2) Hold and save the United States free from damages due to the construction or an atenance of the project, except those damages which are attributable to the fault or negligence of the Government or its contractor; and hold and save the United States free from any damages which may result from the Commonwealth of Massachusetts' performance, or failure to perform, any of its required responsibilities for the project.
- (3) Enact and enforce legislation prior to completion of the project to prevent the creation of future sources of drift and debris.
- (4) Provide the transfer and disposal sites as proposed including suitable access thereto, or in the alternative provide other sites should the planned sites become unavailable for any reason prior to construction of the project. If any alternative site or sites are furnished by the Commonwealth of Massachusette which result in a higher disposel cost than would be incurred if the planned sites were used, the difference in cost would be the responsibility of the Commonwealth.
- (5) In accordance with Section 202, Public Law 94-587, (90 Stat. 2917), 33 U.S.C.A. 426 m:
- (a) Contribute a cash payment of 1/3 of the first cost for removal of drift and debris which cannot be attributed to an identifiable owner; a sum presently estimated at \$1,055,000.

NEDPL-C Honorable Edward J. King

- (b) Contribute a cish payment of 100% of the first cost for removal of drift or debris which is attributable to an identifiable owner, a sum presently satimated at \$10,300,000.
- (c) Pay its required contributions in a lump sum prior to commencement of project construction or in installments prior to commencement of pertinent work items, in accordance with construction schedules as required by the (hief of Engineers. The final apportionment of cost will be made after actual costs and values have been determined.
- (6) Make necessary repairs to deteriorated waterfront structures in use which are potential sources of drift, the cost of which is presently estimated at \$2,363,000. The repairs will be performed simultaneously with the work performed by the Federal Government on the project. The material removed in connection with the repairs may be disposed of at no cost to the Federal Government in the facilities provided to the Federal Government for the project.
- (7) Comply with the requirements of non-Federal cooperation as specified in the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646.

As an important prerequisite to forwarding a favorable report on this project to Congress, it is necessary for the Commonwealth of Massachusetts to express in writing its acceptance and endorsement of the selected plan and willingness and ability to meet conditions of local cooperation described above. Also your comments on the President's proposed cost sharing would be appreciated. After receipt of your comments, I will complete both documents and submit them to higher authority in Washington, D.C. for final raview. The documents would then be forwarded to the Secretary of the Army, Office of Management and Budget and the Congress. The Congress must authorize the project and appropriate funds for design and construction. Formal assurance of local cooperation would be obtained during the design phase prior to actual construction.

Your early letter response would be appreciated in order to complete our work and begin the final review process towards project authorization.

Sincerely yours,

MAX B. SCHEIDER
Colonel Corps of Engineers
Division Engineer



THE COMMONWEALTH OF MASSACHUSETTS EXECUTIVE DEPARTMENT

STATE HOUSE . BOSTON 02133

December 15, 1977

Colonel John P. Chandler Division Engineer U.S. Army Corps of Engineers 424 Trapelo Road Waltham, Massachusetts

Dear Colonel Chandler:

RE: Boston Harbor Debris Removal

We have reviewed in detail the Corps' Boston Harbor (Debris) study and the proposed plan of cleanup, elimination of sources of debris, and dilapidated pier removal/rehabilitation in the city of Boston and contiguous communities between the Towns of Hull and Winthrop. The concept and goals of the proposed plan meet with the plans of my administration and have my full support. The elimination of debris from Boston Harbor will be a major benefit to the Commonwealth of Massachusetts.

The Commonwealth, through the Department of Environmental Quality Engineering, is prepared to act as the local cooperating agency for Massachusetts's interests. We assure you of our willingness to cooperate with the federal government, through the Army Corps of Engineers, in performing this work.

The Commonwealth of Massachusetts will:

- (1) Provide without cost to the United States all lands, easements, and rights of way required for implementation of our State's participation in the considered improvement, upon the request of the Chief of Engineers, where legally possible.
- (2) Hold harmless and save the United States free from damages that may result from the considered improvements and from any consequent maintenance work or activities relating to the improvement, insofar as laws of the Commonwealth permit.

Colonel John P. Chandler Page 2 December 15, 1977

- (3) Work with the local governments and recommend to them enactment of local legislation to supplement federal legislation that will prevent creation of sources of drift, and debris from derelict vessels and deteriorated structures.
- (4) Assure its willingness to provide the non-federal costs of the considered improvements contained in the report, subject to appropriations to be provided by the Great and General Court of the Commonwealth.
- (5) Encourage adoption of necessary legislation requiring repairs and maintenance to deteriorated structures for the purpose of eliminating them as a source of debris.

Your continuing support in this matter as appreciated.

MSD:dsp

cc: Secretary Evelyn Murphy



THE COMMONWEALTH OF MASSACHUSETTS EXECUTIVE DEPARTMENT

STATE HOUSE . BOSTON 02133

October 6, 1978

Colonel John P. Chandler Division Engineer New England Division U.S. Army Corps of Engineers 424 Trapelo Road Waltham, Massachusetts 02154

Dear Colonel Chandler:

I am writing to formally endorse the Corps of Engineers' Boston Harbor Debris Cleanup Program.

Because of the importance with which the Commonwealth views this program, particularly in light of the economic, environmental and safety benefits that would accrue to Boston and its surrounding communities, I am reaffirming the commitment and support, previously relayed to you by Lt. Governor O'Neill, to comply with items contained in Appendix I, page G-3 of your Feasibility Report on Cleanup of Sources of Floatable Debris, some of which the Commonwealth has already complied with.

Further, to ensure that this program moves ahead, the Commonwealth will pay the entire non-federal portion of costs associated with this program.

I look forward to the startup of this program, which I view as a reaffirmation of the importance, and viability of targeting federal and state programs to urban areas.

MSD/mfo

Appendix 7

1



CITY OF BOSTON OFFICE OF THE MAYOR CITY HALL BOSTON

October 10, 1978

Colonel John J. Chandler Army Corps. of Engineers Division Engineer 424 Trapelo Road Waltham, MA

Dear Colonel Chandler:

This letter is to inform you of my support of the Boston Harbor Cleanup project.

Concerning the statement of non-federal responsibilities in the Draft Environmental Impact Statement (Appendix 1, Section G, Number 1,2,3,4 and 7), I commit the City of Boston to compliance with said items insofar as they apply and are relevant to the City and my statutory authority as Mayor.

The project is clearly an ambitious one and holds great promise for Boston and all communities on the harbor. Please continue to keep my office advised on the projects and its progress.

Singerely,

Kevin H. White

Mayor

THE TOWN OF BRAINTREE



OFFICE OF SELECTME

TELEPHONE
848-1870

ONE JOHN FITZGERALD KENNEDY MEMORIAL DRIVE BRAINTREE, MASSACHUSETTS 02184

October 13, 1978

Colonel John P. Chandler Division Engineer U.S. Corps of Engineers 424 Trapelo Road Waltham, Mass. 02154

Dear Col. Chandler:

On behalf of the Town of Braintree, I wish to express our support of the Boston Harbor Debris Cleanup Program.

It is our intention to comply with the provisions as outlined in Appendix I forwarded to this office by Lt.

Governor O'Neill, specifically the easements and rightsof-way which may be required, hold harmless agreement to
keep the government free of possible damages which may
arise from improvements, enactment and enforcement of
appropriate legislation to prevent future sources of
drift and debris, written commitments when necessary for
the utilization of transfer or disposal sites and compliance with the requirements of non-federal cooperation
as specified in the Uniform Relocation Assistance and
Real Property Acquisition Act of 1970.

Robert R. Sherman

Executive Secretary/Administrator

cc: Rita o'Connor Lt. Gov. C'Neill's office Room 167, State House Bouton, Mass. 02133



CITY OF CAMBRIDGE

CAMBRIDGE, MASSACHUSETTS 02139 Tel. 876-6800

EXECUTIVE DEPARTMENT JAMES L. SULLIVAN City Manager

September 15, 1978

Colonel John P. Chandler Division Engineer U. S. Army Corps of Engineers 424 Trapelo Road Waltham, Massachusetts 02154

Re: Boston Harbor Debris Removal

Dear Colonel Chandler:

We have reviewed the Corps' study for Boston Harbor Debris Removal and are pleased to offer the support of the City of Cambridge for your proposed plan.

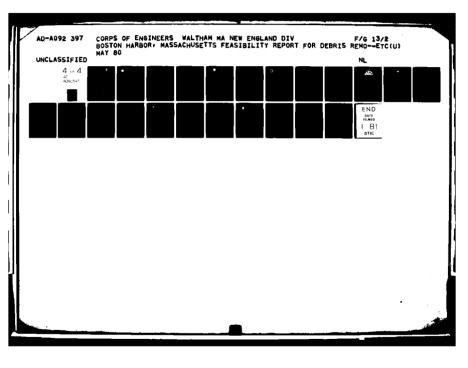
Be assured of our cooperation in complying with the requirements outlined in Appendix I, G-3, specifically items 1, 2, 3, 4 and 7.

Very truly yours,

James L. Sullivan

City Manager

JLS/mbf



The City of Chelsea Massachusetts



Office of the Mayor

oel M. Pressman, Mayor

September 6, 1978

Colonel John P. Chandler
Department of the Army
Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts 02154

Dear Colonel Chandler:

This is to support the Corps' proposed cleanup of floatable debris sources in Boston Harbor. I feel this program could very positively affect the development potential of the former Chelsea Naval Hospital site. It would serve to complement the City of Chelsea proposal to the Corps for the dredging of the Island End River to improve its navigibility for a planned marina. Further, the City is currently studying the feasibility of other development projects along the Harbor. There seems to be an increased awareness and concern within the community for our waterfront areas.

In conjunction with this proposed program, I would agree to provide my fullest cooperation to the Corps, particularly in regard to items (1), (2), (3), (4) & (7) as indicated on page G-3 of Appendix I of the Feasibility Report. It is my understanding that the Commonwealth of Massachusetts would provide assurances as to items (5) & (6).

If I can be of any further assistance at this time, please do not hesitate to call.

very truly yours

Pressman

JMP/dlc

cc: Lt.Governor O'Neill

Appendix 7

12



CITY OF EVERETT

MASSACHUSETTS

OFFICE OF THE MAYOR

September 8, 1978

Colonel Chandler U.S. Army Corps of Engineers Div. Engineer 424 Trapelo Road Waltham, MA 02154

Dear Colonel Chandler:

In response to Lt. Governor Thomas P. O'Neill III request, I am informing you of my community's interest in the Boston Harbor Debris Cleanup Program. An enclosure from the Lt. Governor specifically mentioned items 1, 2, 3, 4, and 7 regarding legal requirements on the part of the City of Everett.

It is my intention to comply with all such items with the understanding the Commonwealth will satisfy items 5 and 6.

I look forward to the Boston Harbor Cleanup and indeed support this worthwhile project.

Sincerely yours,

George R. McCarthy

GRM: ps

CC: The Honorable Thomas P. O'Neill III



TOWN OF HINGHAM

MASSACHUSETTS
OFFICE OF BELECTMEN

EUGENE E. BICKFORD, CHAIRMAN OSCAR P. BECK JOSEPH F. DALEY, JR.

October 2nd, 1978

Colonel John Chandler Corps of Engineers Department of Army 424 Trapelo Road Waltham Massachusetts 02154

Dear Sir:

This is to advise that the Board of Selectmen of the Town of Hingham support the total project, Boston Harbor Debris Program, and the individual maintenance requirements.

It is our intention to comply with the following:

- 1) Provide, without cost to the United States, all lands, easements and rights-of-way required for the implementation of the considered improvement upon request of the Chief of Engineers.
- 2) Hold and save the United States free from damages that may result from the considered improvement, and from any subsequent maintenance work or activities in connection with the improvement except where such damages are due to the fault or negligence of the United States or its contractors.
- 3) Enact and enforce local legislation during and after completion of work in Boston Harbor to prevent creation of sources of drift and debris such as derelict vessels, deteriorated structures and drift along shores to supplement existing Federal legislation. A sample ordinance is included in Appendix 6 also, maintain all shorefront facilities and lands during and after cleanup to prevent their becoming a source of debris again.
- 4) Provide a written commitment to the use of the transfer and disposal sites as proposed and to provide suitable alternative sites should the planned sites become unavailable for any reason prior to construction of the project. It should be noted that if any alternative site or sites are selected by the Commonwealth of Massachusetts subsequently which result in a higher disposal cost over currently proposed sites, the difference in cost would be the responsibility of now federal interests.

5) Comply with the requirements of non-federal cooperation as specified in the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646.

Very truly yours

Eugene E. Bickford,

Chairman

cc: Lt. Governor O'Neill Room 259, State House Boston, Mass. 02133



September 12, 1978

Colonel John P. Chandler Division Engineer Corps of Engineers 424 Trapelo Road Waltham, Massachusetts 02:54

Dear Colonel Chandler:

At a meeting of the Hull Board of Selectmen held on September 11, 1978, it was unanimously voted to support the Boston Harbor Debris Program and, further, to state our intention to comply with the following:

- (1) Provide, without cost to the United States, all lands, easements and rights-of-way required for the implementation of the considered improvement upon request of the Chief of Engineers.
- (2) Hold and save the United States free from damages that may result from the considered improvement, and from any subsequent maintenance work or activities in connection with the improvement except where such damages are due to the fault or negligence of the United States or its contractors.
- (3) Enact and enforce local legislation during and after completion of work in Boston Harbor to prevent creation of sources of drift and debris such as derelict vessels, deteriorated structures and drift along shores to supplement existing Federal legislation; also maintain all shorefront facilities and lands during and after cleanup to prevent their becoming a source of debris again.
- Provide a written commitment to the use of the transfer and disposal sites as proposed and to privide suitable alternative sites should the planned sites become unavailable for any reason prior to construction of the project. It should be noted that if any alternative site or sites are selected by the Commonwealth of Massachusetts subsequently which result in a higher disposal cost over currently proposed sites, the difference in cost would be the responsibility of now-federal interests.

(7) Comply with the requirements of non-federal cooperation as specified in the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646.

Very truly yours,

BOARD OF SELECTMEN

By: Wavid & De imany

David E. Berman Chairman

DEB/b

cc: Lt. Governor O'Neill Selectmen

Harbor Master



THE CITY OF REVERE, MASSACHUSETTS

OFFICE OF THE MAYOR CITY HALL

September 5, 1978

Colonel Chandler U.S. Army Corps of Engineers Waltham, MA 02154

Dear Colonel Chandler:

Please be advised that the City of Revere wholeheartedly supports and endorses the Corps proposed Boston Harbor Debris Clean-Up Program.

In order to facilitate the initiation and implementation of this project, the City of Revere hereby agrees to the following:

- 1. It will provide without cost to the United States, all lands, easements, and rights-of-way required for the implementation of the considered improvement upon request of the Chief of Engineers.
- 2. It will hold and save the United States free from damages that may result from the considered improvements and from subsequent maintenance work or activities in connection with the improvement except where such damages are due to the fault or negligence of the United States or its contractors.
- 3. It will enact and enforce local legislation during and after completion of work in Boston Harbor to prevent creation of sources of drift and debris such as derelict vessels, deteriorated structures and drift along shores to supplement existing Federal legislation; and further it will maintain all shorefront facilities and lands during and after cleanup to prevent their becoming a source of debris again.
- 4. It will provide the use of the proposed transfer and disposal sites and will provide suitable alternative sites should the planned sites become unavailable for any reason prior to construction of the project.
- 5. It will comply with the requirements of non-federal cooperation as specified in the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646.

It is understood that the City of Revere's endorsement of this project and agreement of compliance with the aforementioned items is contingent upon the Commonwealth of Massachusetts assumption of the non-federal share of the project cost.

Thank you for your attention in this matter, I look forward to the initiation of this project and a subsequent better living environment in the City of Revere.

Very truly yours,

George V. Colella

Mayor

GVC/jt

cc: Thomas ?. O'Neill III

Lt. Governor



EXECUTIVE DEPARTMENT SOMERVILLE, MASSACHUSETTS

WILLIAM J. ADARIO ADMINISTRATIVE ASSISTANT

THOMAS F. AUGUST MAYOR

CATHLEEN B. O'DEA ADMINISTRATIVE ASSISTANT

September 7, 1978

Colonel John P. Chandler **Division Engineer** New England Division U.S. Army Corps of Engineers 424 Trapelo Road Waltham, MA 02154

Dear Colonel Chandler:

The City of Somerville supports the Boston Harbor Debris Program. The City intends to provide lands, easements and rights-of-way that may be necessary to implement this improvement. The City will hold the U. S. free from damages that may result from the improvement, and from any subsequent maintenance work or activities in connection with the improvement except where such damages are due to the fault or negligence of the U. S. or its contractors.

Furthermore, the City of Somerville will enact and enforce local legislation during and after completion of work in Boston Harbor to prevent creation of sources of drift and debris. The City of Somerville, if necessary, will provide a written commitment to the use of the transfer and disposal sites and provide suitable alternative sites should the planned sites become unavailable. The City intends to comply with the requirements of non-federal cooperation as specified in the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646.

This letter is based on the understanding that the Commonwealth of Massachusetts will provide the local non-federal matching share and make necessary repairs to deteriorated structures in use satisfactory to the Chief of Engineers so as to eliminate them as a source of drift.

Should you have further questions, please contact J. Richard Poulin of my office at 625-6600, Ext. 142.

Very truly yours,

Thomas F. August

Mayor

TFA/djr

cc: Lt. Governor O'Neill's Office

AN EQUAL OPPORTUNITY EMPLOYER

Appendix 7

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BOARD OF SELECTMEN

DWARD W. OWENS, JR CHAIRMAN

BARBARA LEARY SCANNELL VICE CHAIRMAN AND CLERK

WILLIAM B. BARRY, JR.

WILLIAM J. GUNVILLE

JAMES R. GOODE

335-2000



1622 Three Hundred and Fifty-Five Years of Planned Progress



East Weymouth, Mass. 02189

THE TOWN OF WEYMOUTH MASSACHUSETTS

September 27, 1978

Colonel Chandler U.S. Army Corps of Engineer Division Engineer 424 Trapelo Road Waltham, Massachusetts 02154

Dear Colonel Chandler:

The Town of Weymouth, based on a vote of the Board of Selectmen heartily endorses the Boston Harbor Debris Cleanup Program.

It is our intention to comply with items # 1,2,3,4, and 7 of Appendix 1, G-3, based on obtaining approval of our representative body, the Town Meeting. We will submit the appropriate articles concerning each one of these items to our Annual Town Meeting in May.

Very truly yours,

TOWN OF WEYMOUTH BOARD OF SELECTMEN

Edward W. Owens, Jr.

Chairman

EWO/bf

TOWN OF WINTHROP

RICHARD D. DIMES, Chairman JAMES T. REDDY THOMAS E. REILLY, JR.

MARIE T. TURNER, Secretary



BOARD OF SELECTMEN

TOWN HALL WINTHROP, MASS. 02152 846-1076

September 1, 1978

Colonel John P. Chandler, Division Engineer New England Division U.S. Army Corps of Engineers 424 Trapelo Road Waltham, Massachusetts

Re: Boston Harbor Debris Program

Dear Colonel Chandler:

The Winthrop Board of Selectmen wish to go on record in support of the above project, and the Commonwealth's intention to file legislation to authorize a bond issue to pay for the entire nonfederal share on this project.

We also agree to the following conditions, as regards this project:

To provide, without cost to the United States, all lands, easements and rights-of-way required for the implementation of the considered improvement upon request of the Chief of Engineers;

To hold and save the United States free from damages that may result from the considered improvement, and from any subsequent maintenance work or activities in connection with the improvement except where such damages are due to the fault or negligence of the United States or its contractors;

To enact and enforce local legislation during and after completion of work in Boston Harbor to prevent creation of sources of drift and and debris such as derelict vessels, deteriorated structures and drift along shores to supplement existing Federal legislation. And to maintain all shorefront facilities and lands during and after cleanup to prevent their becoming a source of debris again.

To provide a written commitment to the use of the transfer and disposal sites as proposed and to provide suitable alternative sites should the planned sites become unavailable for any reason prior to construction of the project. If any alternative site or sites are selected by the Commonwealth of Massachusetts subsequently which railt in a higher disposal cost over currently proposed sites, the difference in cost would be the responsibility of now federal interests.

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To comply with the requirements of non-federal cooperation as specified in the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646.

Thank you for your kind attention to this matter.

Very truly yours,

BOARD OF SELECTMEN

fames 1.

Thomas E. Reilly, Sr.

cc: Thomas P. O'Neill III Lieutenant Governor



DEPARTMENT OF TRANSPORTATION UNITED STATES COAST GUARD

Commander (obr) First CG District 150 Causeway Street Boston, MA 02114 Tel: 617-223-0645

TO HOUSE

16591

* 1 SEP 1978

Division Engineer New England Division Corps of Engineers 424 Trapelo Road Waltham, MA 02154

Subj: DEIS for cleanup of floatable debris sources in Boston Harbor, Mass.

- 1. We have reviewed the Draft Environmental Imapact Statement prepared for the proposed cleanup of floatable debris sources in Boston Harbor. In general, the statement is readable and informative. We note that the proposal includes the removal of the fenders at certain bridges in the harbor area. As these bridges are under Coast Guard jurisdiction, we have the following comment.
- 2. The removal of the fenders will violate the Federal permits issued for the construction of these bridges. However, this fact is not mentioned in the DEIS. The owners of the bridges should be requested to seek Coast Guard approval of the proposed alterations prior to the start of work. If this is not done, the owners should be required to immediately rebuild the fenders.
- 3. In another matter, Part A, Technical Report, Appendix 2 of the DEIS the REPAIR item states that the Congress Street bridge is permanently closed to navigation. Actually, the City of Boston is permitted to maintain the drawspans in the Congress and Summer Street bridges over Fort Point Channel in a closed position. The draws are to be returned to an operable condition within six months after notification from the Commandant, U. S. Coast Guard to take such action.

By direction



The Commonwealth of Massachusetts
Office of the Secretary
Massachusetts Historical Commission
294 Washington Street Boston, Massachusetts 02108
[617] 727-8470

July 20, 1978

Joseph L. Ignazio, Chief Planning Division U.S. Army Corps of Engineers 424 Trapelo Road Waltham, MA 02154

Re: DEIS, Removal and Disposal of Sources of Floatable Debris, Boston Harbor

Dear Mr. Ignazio:

The Massachusetts Historical Commission has reviewed the Draft Environmental Impact Statement for removal of sources of floatable debris in Boston Harbor. We feel that the DEIS adequately addresses possible effects to historic and archaeological resources. We look forward to working with you in the future.

Sincerely,

Paterce R. Weslawsk.

Patricia L. Weslowski State Historic Preservation Officer Acting Executive Director Massachusetts Historical Commission

PLW/VT/1h



United States Department of the Interior

OFFICE OF THE SECRETARY
Northeast Region
15 State Street
Boston, Massachusetts 02109

August 24, 1978

Colonel John P. Chandler
Division Engineer
New England Division, Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts 02154

Dear Colonel Chandler:

This is in response to your request for the Department of the Interior's comments on the draft environmental statement for removal and disposal of sources of floatable debris, Boston Harbor; Plymouth, Norfolk, and Suffolk Counties, Massachusetts (ER-78/657).

We have reviewed the document and find that it is generally adequate. However, we have the following specific comments:

Section 1.07, Detailed Dascription of the Project

In the September 1, 1967, and February 22, 1978, U. S. Fish and Wildlife Service letters to the Division Engineer, concern was expressed that some dilapidated structures might provide access for fishing and that their removal would cut off such access. It was recommended that some of the old piers or other facilities now providing sport-fishing opportunities be retained and repaired or rebuilt to provide safer and possibly increased fishing opportunities and it was requested that this be incorporated into the project plan.

The Corps should be reminded that both the National Park Service and the Boston Redevelopment Authority are amidst development planning for the preservation and use of the Charlestown Navy Yard. Close coordination in detailed project planning and adequate advance notice of physical work in that area should be accomplished to ensure mutual benefit to all parties.

Section 4.00, Probable Impacts of the Proposed Action on the Environment

While the debris cleanup would provide for safety improvements and esthetic enhancement, there will be some esthetic and recreational losses of nostalgic or traditional activity and perhaps some loss in marginal economic enterprises. The careful identification of significant cultural resource values and/or the potential for safe recreational activity in these areas would control such losses.

Sincerely yours,

William Patterson

Regional Environmental

Officer



UNITED STATES DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

Ecological Services
P. O. Box 1518

Concord, New Hampshire 03301

February 22, 1978

Division Engineer New England Division, Corps of Engineers 424 Trapelo Road Waltham, Massachusetts 02154

Dear Sir:

This is our conservation and development report on the Boston Harbor Debris Study, Massachusetts. The study is being made under authority of a Resolution of the Senate Committee on Public Works adopted March 18, 1966. This report was prepared under authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-666 inc.), in cooperation with personnel from the Massachusetts Division of Marine Fisheries, the Division of Fisheries and Wildlife, and the Office of Coastal Zone Management.

We understand that this project concerns the feasibility of a one-time program to dispose of Boston Harbor's sources of floatable debris. The area covered includes 47 square miles of the Inner and Outer Harbors from Point Allerton at Hull to Deer Island. Some tributary waters are included.

Biological resources which could be affected by the proposed debris removal project include plant and animal communities that grow on pilings, piers, floats and dilapitated ships. These are commonly called fouling communities and consist of organisms such as algae, barnacles, sponges, mussels, amphipods and bacterial slimes. Fouling communities are a source of organic carbon production in harbor areas and can be important sources of detritus when other input sources are lacking. Fish are often associated with fouling communities because of an abundant food source and protection provided by the structures. Shorebirds such as gulls and terms may use some of the structures as perches.

Boston Inner Harbor contains a depauperate assemblage of fouling communities and associated fish populations. Pollution problems in the harbor and effects of harbor alterations prevent some biological systems from developing. The Inner Harbor waters are known to develop dissolved oxygen deficiencies which places a further stress on many biological systems.

In the Outer Harbor, well developed fouling communities appear and their makeup closely resembles those described above. Associated fish and

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ether mobile organisms include the common mummichog or killifish (Fundulus heteroclitus) and silversides (Menidia menidia) and fourspine stickleback (Apeltes quadracus).

In our September 1, 1967, letter we expressed concern that some dilapidated structures might provide access for fishing and that their removal would cut off such access. The feasibility study currently being reviewed indicates that structures which can be repaired and again become useful will not be entirely removed but would be rehabilitated. This appears to accomplish our first recommendation in the 1967 letter.

The remaining two recommendations are no longer appropriate to this study.

The removal of piers, pilings, sunken vessels and other debris in Boston Harbor would eliminate habitat for fouling communities. Most of the debris sources are located in the Inner Harbor where fouling communities are presently able to survive only marginally because of water quality limitations. However, water pollution abatement measures which have been mandated by the Clean Water Act may reverse this situation in the future. The State of Massachusetts is presently reclassifying the Inner Harbor as Class SC waters and the Outer Harbor as Class SB. In the present situation, we do not expect significant biological resources to be lost as a result of debris removal in open water areas.

Based on current information our primary concern relates to sources of debris which may be located in mud flats or salt marsh in the Outer Harbor and tributaries. If debris is located in such areas it may be practical to remove it manually instead of using heavy equipment. Alternatively, it may be prudent to leave the debris in place to avoid disturbing productive habitat. Such sites should be reviewed carefully to determine the most appropriate method of debris removal or if potential damage to fish and wildlife habitat could exceed the value of removal of the debris.

The ultimate disposal location and/or method of getting rid of the debris could be of concern to our agency. We recommend that the debris be used as a beneficial resource if possible.

Should the project become authorized, we recommend that authorized representatives of the Natural Resource and Construction Agencies do an on-site inspection of each debris source in the Outer Harbor. Problem sites could be noted, if present, and solutions explored prior to finalization of the design memorandum. The disposal locations and/or methods could be handled in a similar fashion if necessary.

We appreciate the opportunity to comment on this project.

Gordon E. Beckett

Supervisor



DAVID STANDLEY COMMISSIONER

The Commonwealth of Massachusetts

Executive Office of Environmental Affairs Department of Environmental Quality Engineering 100 Cambridge Lined. Basion 02202

July 3, 1978

Colonel Ralph T. Garver Acting Division Engineer New England Division, Corps of Engineers U.S. Army 424 Trapelo Road Waltham, Massachusetts 02154

Dear Colonel Garver:

Thank you for your letter of June 5, 1978 to Governor Dukakis concerning the Draft Feasibility Report and Draft Environmental Impact Statement prepared by the Corps for the proposed federal/ state project to remove and dispose of floatable debris sources in Boston Harbor. We look forward to distribution of those documents and the associated review. This letter is in further response to the correspondence sent to you from Secretary Murphy.

The Commonwealth has reviewed and concurs with the Corps in the concept of debris removal, those designated transfer sites in South Boston Navy Yard and at the Hingham Industrial Center and disposal at a proposed location in Marshfield.

In view of the undefined contract execution date and construction period, it is virtually impossible to forecast the continued availability of the defined transfer and disposal sites. It is, at this time, our basic intention to utilize those facilities as indicated in the report. Should those facilities, for whatever reason, not be available for the indicated purpose, it will be the intention of the Commonwealth to identify and provide suitable substitute facilities to accomplish the work. Further, should the need arise to use other facilities and should those facilities be more costly than the original scheme, it is our intention to assume financial liability and provide for the non-federal interests to bear the differential cost.

Your continued interest in this mutually beneficial project is appreciated.

DS:JJH/eb

CC: Governor Dukakis

Sec. Evelyn F. Murphy, EOEA

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Bo on How



The Commonwealth of Massachusells Executive Office of Environmental Affairs 100 Cambridge Street Boston, Massachusetts 02202

June 22, 1978

Mr. Ralph T. Garver
Department of the Army
New England Division
Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts 02154

Dear Mr. Garver:

The Governor has asked me to respond to your letter of June 6th re: Boston Urban Disposal Sites.

The sites proposed in your letter are, as you know, in private ownership. As such while the state cannot commit their use, we can work with you to secure their availability.

Commissioner David Standley of the Department of Environmental Quality Engineering has informed me that the site proposed should be able to accommodate the amount of debris you project for disposal.

I have asked Commissioner Standley to work with you in this effort and if I can be of any further assistance please contact me. The clean up effort remains a high priority for the Commonwealth and you may be assured that any assistance we may provide to expedite this project will be forthcoming.

Sincerely

Evelyn F. Murphy

Secretary

EFM/MV/jmdi

cc: Da id Standley, Commissioner, DEQE Thomas P. O'Neill



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION I

J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203

August 24, 1978

Colonel John Chandler
New England Division
U.S. Army Corps of Engineers
424 Trapelo Road
Waltham, MA 02154

Dear Colonel Chandler:

We have completed our review of the Draft Environmental Impact Statement (EIS) for Removal and Disposal of Sources of Floatable Debris in Boston Harbor and are forwarding the following comments for your consideration in preparing the Final EIS.

We fully support the goals of the project since the removal of debris, both stationary and floating, will serve to improve the water quality of the Harbor through better flushing characteristics. However, we are concerned with certain aspects of the selected disposal method/location and hope that the Final EIS would contain further information concerning an analysis of alternatives.

There is a lack of necessary information concerning the selected disposal site in Marshfield. The EIS does not discuss in enough detail the potential impacts of use of this site. Specifically, there is little discussion of the potential effects of disposal on groundwater resources. The Marshfield site is located in glacial outwash-plain deposits. These deposits are composed primarily of very permeable horizontally bedded sands and gravels. The aquifer below the proposed site has been estimated to be capable of vielding up to 300 gpm of groundwater. In light of this capability and the possibility that groundwater could be contaminated by creosore and other waste materials we feel that the potential impacts on the Marshfield site should be investigated more thoroughly and alternative sites should be considered.

We also feel that the Final EIS has not presented sufficient information regarding the possibilities of burning of waste material and capture of waste heat. Specifically, there is no evidence of coordination with Resco officials and no comparison of transportation costs between a Resco (Saugus) alternative and use of the Mansfield site.

Colonel John Chandler Page Two August 24, 1978

We hope that the Final EIS will address the above issues. In accordance with our national rating system, a copy of which is enclosed, we have rated this Draft EIS LO-2.

If you have any questions regarding our comments, please feel free to contact John Lynch of my office at 223-0400.

Sincerely,

Wallace E States R. F.

Wallace E. Stickney, P.E.
Director, Environmental & Economic

Impact Office

Enclosure

EXPLANATION OF EPA RATING

Environmental Impact of the Action

LO -- Lack of Objections

EPA has no objections to the proposed action as described in the draft environmental impact statement; or suggests only minor changes in the proposed action.

ER -- Environmental Reservations

EPA has reservations concerning the environmental effects of certain aspects of the proposed action. EPA believes that further study of suggested alternatives or modifications is required and has asked the originating federal agency to reassess these aspects.

EU -- Environmentally Unsatisfactory

EPA believes that the proposed action is unsatisfactory because of its potentially harmful effect on the environment. Furthermore, the Agency believes that the potential safeguards which might be utilized may not adequately protect the environment from hazards arising from this action. The Agency recommends that alternatives to the action be analyzed further (including the possibility of no action at all).

Adequacy of the Impact Statement

Category 1 -- Adequate

The draft environmental impact statement sets forth the environmental impact of the proposed project or action as well as alternatives reasonably available to the project or action.

Category 2 -- Insufficient Information

EPA believes that the draft environmental impact statement does not contain sufficient information to assess fully, the environmental impact of the proposed project or action. However, from the information submitted, the Agency is able to make a preliminary determination of the impact on the environment. EPA has requested that the originator provide the information that was not included in the draft environmental impact statement.

Category 3 -- Inadequate

EPA believes that the draft environmental impact statement does not adequately assess the environmental impact of the proposed project or action, or that the statement inadequately analyzes reasonably available alternatives. The Agency has requested more information and analysis concerning the potential environmental hazards and has asked that substantial revision be made to the impact statement.

If a draft environmental impact statement is assigned a Category 3, no rating will be made of the project or action; since a basis does not generally exist on which to make such a determination.

